SOIL SURVEY OF

Lancaster County South Carolina

U. S. Department of Agriculture
Soil Conservation Service
In cooperation with
South Carolina
Agricultural Experiment Station

Issued 1973

Major fieldwork for this soil survey was done in the period 1955-66. Soil names and descriptions were approved in 1967. Unless otherwise indicated, statements in the publication refer to conditions in the county in 1966. This survey was made cooperatively by the Soil Conservation Service and the South Carolina Agricultural Experiment Station. It is part of the technical assistance furnished to the Lancaster Soil Conservation District.

Either enlarged or reduced copies of the soil map in this publication can be made by commercial photographers, or they can be purchased on individual order from the Cartographic Division, Soil Conservation Service, United States Department of Agriculture, Washington, D.C. 20250.

HOW TO USE THIS SOIL SURVEY

THIS SOIL SURVEY contains information that can be applied in managing farms and woodlands; in selecting sites for roads, ponds, buildings, and other structures; and in judging the suitability of tracts of land for farming, industry, and recreation.

Locating Soils

All the soils of Lancaster County are shown on the detailed map at the back of this publication. This map consists of many sheets made from aerial photographs. Each sheet is numbered to correspond with a number on the Index to Map Sheets.

On each sheet of the detailed map, soil areas are outlined and are identified by symbols. All areas marked with the same symbol are the same kind of soil. The soil symbol is inside the area if there is enough room; otherwise, it is outside and a pointer shows where the symbol belongs.

Finding and Using Information

The "Guide to Mapping Units" can be used to find information. This guide lists all the soils of the county in alphabetic order by map symbol and gives the capability classification and the woodland designation of each. It also shows the page where each soil is described and the page for the capability unit to which the soil has been assigned.

Individual colored maps showing the relative suitability or degree of limitation of soils for many specific purposes can be developed by using the soil map and the information in the text. Translucent material can be used as an overlay over the soil map and colored to show soils that have the same limitation or suitability. For example, soils that have a slight limitation for a given use can be colored green, those with a moderate limitation can be colored yellow, and those with a severe limitation can be colored red.

Farmers and those who work with farmers can learn about use and management of the soils from the soil descriptions and from the descriptions of the capability units.

Foresters and others can refer to the section "Woodland," where the soils of the county are grouped according to their suitability for trees.

Game managers, sportsmen, and others can find information about soils and wildlife in the section "Wildlife."

Community planners and others can read about soil properties that affect the choice of sites for nonindustrial buildings and for recreation areas in the section "Limitations of the Soils for Town and Country Planning."

Engineers and builders can find, under "Use of the Soils in Engineering," tables that contain test data, estimates of soil properties, and information about soil features that affect engineering practices.

Scientists and others can read about how the soils formed and how they are classified in the section "Formation and Classification of the Soils."

Newcomers in Lancaster County may be interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the information about the county given in the section "Additional Facts About the County."

Cover: Stand of loblolly pine has been thinned for pulpwood. The soil is Appling fine sandy loam, 2 to 6 percent slopes, eroded.

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SOIL SURVEY OF LANCASTER COUNTY, SOUTH CAROLINA

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SOIL CONSERVATION SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE IN COOPERATION WITH THE

SOUTH CAROLINA AGRICULTURAL EXPERIMENT STATION

LANCASTER COUNTY is on the north-central boundary of South Carolina (fig. 1). The total land area is approximately 504 square miles, or 322,560 acres. Lancaster is bordered on the west by the Catawba River and on the east by the Lynches River. Fishing Creek and Wateree Lake are on the southwestern boundary along the Catawba River. Lancaster, the county seat, is in the west-central part of the county, on U.S. Highway No. 521, about 40 miles south of Charlotte, N. C., and 60 miles north of Columbia.

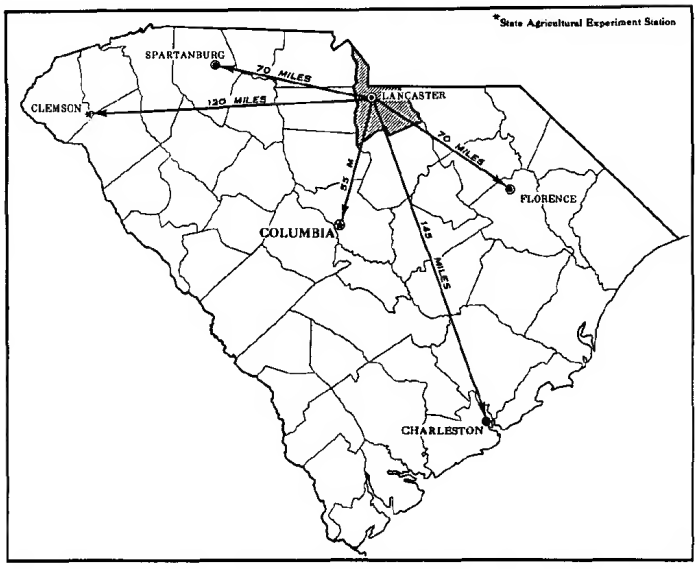

Figure 1.--Location of Lancaster County in South Carolina.

Lancaster County lies in two physiographic areas--the Piedmont Plateau and the Sandhills. The Sandhills section is in the southeastern part and occupies about 11 percent of the county.

The county population is about 39,352. Various types of industry provide the largest source of income. Diversified row crops, cattle, and timber farming are secondary sources. A paper mill is now located on the Catawba River, and it has increased the importance of growing and marketing pulpwood. There were about 501 farms in Lancaster County in 1969 as compared with 2,119 in 1950. The average size of farms increased from 90 acres in 1950 to 151 acres in 1969.

A wide selection of recreational facilities is available in the county. Among these are parks, golf courses, tennis courts, public fishing lakes, and public hunting fields. Public boating and fishing are popular sports on the large water reservoirs along the Catawba River.

HOW THIS SURVEY WAS MADE

Soil scientists made this survey to learn what kinds of soil are in Lancaster County, where they are located, and how they can be used. The soil scientists went into the county knowing they likely would find many soils they had already seen and perhaps some they had not. They observed the steepness, length, and shape of slopes, the size and speed of streams, the kinds of native plants or crops, the kinds of rock, and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material that has not been changed much by leaching or by the action of plant roots.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to nationwide, uniform procedures. The soil series and the soil phase are the categories of soil classification most used in a local survey.

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, all the soils of one series have major horizons that are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Appling and Blanton, for example, are the names of two soil series. All the soils in the United States having the same series name are essentially alike in those characteristics that affect their behavior in the undisturbed landscape.

Soils of one series can differ in texture of the surface soil and in slope, stoniness, or some other characteristic that affects use of the soils by man. On the basis of such differences, a soil series is divided into phases. The name of a soil phase indicates a feature that affects management. For example, Enon loam, 6 to 10 percent slopes, eroded, is one of several phases within the Enon series.

After a guide for classifying and naming the soils had been worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, trees, and other details that help in drawing boundaries accurately. The soil map in the back of this publication was prepared from the aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning the management of farms and fields, a mapping unit is nearly equivalent to a soil phase. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some other kind that have been seen within an area that is dominantly of a recognized soil phase.

Some mapping units are made up of soils of different series, or of different phases within one series. Two such kinds of mapping units are shown on the soil map of Lancaster County: soil complexes and undifferentiated groups.

A soil complex consists of areas of two or more soils, so intermingled or so small in size that they cannot be shown separately on the soil map. Each area of a complex contains some of each of the two or more dominant soils, and the pattern and relative proportions are about the same in all areas. The name of a soil complex consists of the names of the dominant soils, joined by a hyphen. Goldston-Pickens complex, 2 to 6 percent slopes, is an example.

An undifferentiated group is made up of two or more soils that could be delineated individually but are shown as one unit because, for the purpose of the soil survey, there is little value in separating them. The pattern and proportion of soils are not uniform. An area shown on the map may be made up of only one of the dominant soils, or of two or more. The name of an undifferentiated group consists of the names of the dominant soils, joined by "and." Masada and Altavista soils, 2 to 6 percent slopes, is an example.

In most areas surveyed there are places where the soil material is so rocky, so shallow, or so severely eroded that it cannot be classified by soil series. These places are shown on the soil map and are described in the survey, but they are called land types and are given descriptive names. Rock land is a land type in Lancaster County.

While a soil survey is in progress, samples of soils are taken, as needed, for laboratory measurements and for engineering tests. Laboratory data from the same kinds of soil in other places are assembled. Data on yields of crops under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soil. Yields under defined management are estimated for all the soils.

But only part of a soil survey is done when the soils have been named, described, and delineated on the map, and the laboratory data and yield data have been assembled. The mass of detailed information then needs to be organized in such a way as to be readily useful to different groups of users, among them farmers, managers of woodland and rangeland, and engineers.

On the basis of yield and practice tables and other data, the soil scientists set up trial groups. They test these groups by further study and by consultation with farmers, agronomists, engineers, and others. They adjust the groups according to the results of their studies and consultation. Thus, the groups that are finally evolved reflect up-to-date knowledge of the soils and their behavior under present methods of use and management.

GENERAL SOIL MAP

The general soil map at the back of this survey shows, in color, the soil associations in Lancaster County. A soil association is a landscape that has a distinctive proportional pattern of soils. It normally consists of one or more major soils and at least one minor soil, and it is named for the major soils. The soils in one association may occur in another, but in a different pattern.

A map showing soil associations is useful to people who want a general idea of the soils in a county, who want to compare different parts of a county, or who want to know the location of large tracts that are suitable for a certain kind of land use. Such a map is a useful general guide in managing a watershed, a wooded tract, or a wildlife area, or in planning engineering works, recreational facilities, and community developments. It is not a suitable map for planning the management of a farm or field, or for selecting the exact location of a road, building, or similar structure, because the soils in any one association ordinarily differ in slope, depth, stoniness, drainage, and other characteristics that affect their management.

The 14 soil associations in Lancaster County are described on the following pages.

Gently Sloping to Strongly Sloping Soils That Have a Clayey to Loamy Subsoil; on Mostly Medium to Broad Ridges and Side Slopes

Seven soil associations consist of well drained to moderately well drained soils on uplands and somewhat poorly drained soils in depressions. In the southern part of the county, these soils have a surface layer of dominantly loamy sand. In severely eroded areas, the surface layer is clay loam.

1. Appling-Chesterfield Association

Deep, well-drained soils that have a yellowish to reddish, clay to clay loam subsoil

This association is on low, irregular, medium ridges that have many shallow drains. The soils on ridgetops are gently sloping to strongly sloping.

This association makes up about 3 percent of the county, or 15 square miles. It is about 60 percent Appling soils and 13 percent Chesterfield soils. The rest is less extensive soils.

Appling soils have a surface layer of grayish-brown fine sandy loam. The subsoil is strong-brown sandy clay to clay and is commonly mottled.

Chesterfield soils have a surface layer of dark grayish-brown loamy sand to sandy loam. The subsoil is brownish-yellow clay loam to silty clay in the upper part and yellowish-brown silt loam in the lower part.

Among the less extensive soils in this association are the Herndon, Nason, Tatum, Wagram, and Georgeville soils on ridges and side slopes; and the Durham, Helena, and Colfax soils on lower slopes and in slight depressions.

Except for small areas of steep soils, this association has been cleared. About 60 percent of the association is cultivated or in pasture, 25 percent is wooded, and 15 percent is idle or in other uses.

The soils of this association are suited to crops and pasture. They have low organic-matter content, but respond to fertilization and good management. They are well suited to pine trees.

Sites are available in many areas for stockwater and recreation ponds. Many sites are suitable for plantings that provide food and cover for wildlife.

2. Cecil-Davidson Association

Deep, well-drained soils that are red to dark-red clay in the main part of the subsoil

This association is on broad to medium ridges that are separated by many crooked drainageways. The ridgetops are medium to narrow and are indented by many shallow drainageways. Soils on the ridgetops are gently sloping to strongly sloping.

This association makes up about 15 percent of the county, or 76 square miles. It is about 64 percent Cecil soils and 7 percent Davidson soils. The rest is less extensive soils.

Cecil soils have a surface layer of light yellowish-brown fine sandy loam. The subsoil is firm, red clay in the main part.

Davidson soils have a surface layer of dusky red clay loam. The subsoil is dark-red clay in the main part.

Among the less extensive soils in this association are the Appling, Mecklenburg, Enon, Wedowee, Iredell, Georgeville, and Herndon soils on ridges and side slopes; the Helena soils on lower slopes; the Wilkes soils on narrow ridgetops; and the Congaree, Wehadkee, and Chewacla soils on stream flood plains.

A large part of this association has been cultivated. About 65 percent of the association is now wooded, 20 percent is pasture, 5 percent is cultivated, and 10 percent is idle or in other uses.

Sites are available in most areas for stockwater and recreation ponds. Many sites are suitable for plantings that provide food and cover for wildlife.

3. Herndon-Georgeville Association

Deep, well-drained soils that are yellowish-red to red silty clay in the main part of the subsoil

This association is on broad to narrow ridges irregularly indented by shallow drainageways. Soils on the ridgetops are gently sloping to moderately steep.

This association makes up about 31 percent of the county, or 157 square miles. It is about 40 percent Herndon soils and 30 percent Georgeville soils. The rest is less extensive soils.

Herndon soils have a surface layer of reddish-yellow silt loam. The subsoil is yellowish-red, friable to firm silty clay in the main part.

Georgeville soils have a surface layer of yellowish-brown silt loam. The subsoil is red silty clay in the main part.

Among the less extensive soils in this association are the Tatum, Nason, Goldston, and Pickens soils on ridgetops and breaks; the gently sloping to sloping Gills and Worsham soils on uplands and in depressions; the Chewacla soils on stream flood plains; and small areas of Gullied land.

Most of this association has been cultivated, but now about 60 percent is wooded, 25 percent is pasture, 7 percent is cultivated, and 8 percent is idle or in other uses.

The soils in this association are suited to locally grown crops, pasture mixtures, and pine trees. They have a low organic-matter content, but they respond to fertilization and good management. Erosion is a severe hazard on the more sloping soils.

Sites are available in many areas for stockwater and recreation ponds. Many sites are suitable for plantings that provide food for wildlife.

4. Cecil-Enon-Iredell Association

Well drained to moderately well drained soils that are clay in the main part of the subsoil; deep or moderately deep over weathered rock

This association consists of very gently sloping soils on low-lying, broad ridgetops and strongly sloping soils on breaks leading to natural drainageways.

This association makes up about 3 percent of the county, or 15 square miles. It is about 55 percent Cecil soils, 25 percent Enon soils, and 8 percent Iredell soils. The rest is less extensive soils.

Cecil soils are deep. Their surface layer is light yellowish-brown fine sandy loam. The subsoil is red, firm clay in the main part.

Enon soils are moderately deep over weathered rock. They have a surface layer of dark-brown loam to clay loam. The subsoil is strong-brown, plastic clay in the main part.

Iredell soils are moderately deep over weathered rock. They are moderately well drained. They have a surface layer of grayish-brown loam and a subsoil of light olive-brown, very plastic clay.

Among the less extensive soils in this association are the Mecklenburg and Davidson soils on upland ridges and side slopes; the Helena soils on lower slopes; the steep Wilkes soils on narrow ridgetops and side slopes; and the gently sloping to strongly sloping Appling soils on ridges and side slopes.

Most of this association has been cultivated, but now about 50 percent is wooded, 40 percent is pasture, and 10 percent is idle, cultivated, or in other uses.

The soils of this association are suitable for pasture. They are low in organic-matter content, but respond to fertilization.

5. Gills-Enon-Herndon Association

Well-drained to somewhat poorly drained soils that are clay or silty clay in the main part of the subsoil; moderately deep or deep over weathered rock

This association consists of gently sloping to sloping soils on medium to broad ridgetops.

This association makes up about 3 percent of the county, or 15 square miles. About 73 percent of the association is Gills soils, 6 percent is Enon soils, and 6 percent is Herndon soils. The rest is less extensive soils.

Gills soils have a surface layer of dark grayish-brown to pale-yellow silt loam. The subsoil is pale-brown, plastic clay in the main part. Below this is a brittle fragipan.

Enon soils have a surface layer of dark-brown loam. The subsoil is plastic, strong-brown clay in the main part.

Herndon soils have a surface layer of reddish-yellow silt loam. The subsoil is yellowish-red silty clay in the main part.

Among the less extensive soils are the Helena soils on lower slopes; the Georgeville and Nason soils on ridgetops and side slopes; the steep Goldston and Pickens soils on narrow ridgetops and breaks; and the Chewacla soils on stream flood plains.

Most of the association has been cultivated, but now about 60 percent is wooded, 30 percent is pasture, and 10 percent is idle, cultivated, or in other uses.

The response to fertilization and good management is moderate to poor. Suitability for pines is moderate to low.

Sites are available in most drainageways for stockwater and recreation ponds. Most field borders are suitable for plantings that furnish food and cover for wildlife.

6. Pacolet-Lockhart Association

Well-drained soils that have a clay to sandy clay loam subsoil; moderately deep or deep over weathered rock

This association is on medium to narrow ridgetops and sloping areas near small drainageways.

This association makes up about 3 percent of the county, or 15 square miles. About 70 percent of this association is Pacolet soils and 20 percent is Lockhart soils. The rest is less extensive soils.

Pacolet soils are moderately deep over weathered rock. Their surface layer is dark-brown sandy loam to clay loam. The subsoil is friable to firm, red clay loam to clay. The solum is less than 40 inches deep. The material below the subsoil is commonly very friable, and where it is exposed to moving water, the erosion hazard is very severe.

Lockhart soils are deep. They have a surface layer of dark grayish-brown gravelly sandy loam. The subsoil is friable, yellowish-red sandy clay loam. It is more than 33 percent gravel.

Among the less extensive soils in this association are the Appling, Durham, and Cecil soils on medium ridges and side slopes; and the sloping Wedowee soils on narrow ridgetops and areas along drainageways.

Most of this association has been cultivated. About 60 percent is now wooded, 20 percent is pasture, and 20 percent is cultivated, idle, or in other uses.

The major soils of this association are low in organic-matter content. The soils are suited to locally grown crops and pasture mixtures in areas where slopes are less than 10 percent, but they require heavy fertilization. Suitability for pines is moderate.

Sites are available for stockwater and recreation ponds. Most field borders are suitable for plantings that provide food for wildlife.

7. Helena-Appling-Wilkes Association

Moderately well drained to well drained soils that have a sandy clay loam to clay subsoil; deep to shallow over weathered rock

This association is on high, irregular, narrow to medium ridgetops and sides of drainageways.

This association makes up about 8 percent of the county, or 40 square miles. About 70 percent of the association is Helena soils, 18 percent is Appling soils, and 8 percent is Wilkes soils. The rest is less extensive soils.

Helena soils are moderately deep. They have a surface layer of light brownish-gray fine sandy loam. The subsoil is firm, plastic, very pale brown sandy clay.

Appling soils are deep. Their surface layer is grayish-brown fine sandy loam, and the subsoil is mottled strong brown clay.

Wilkes soils are shallow over weathered rock. They have a surface layer of brown sandy loam. The subsoil is thin and is yellowish-brown clay loam.

Among the less extensive soils are the Cecil soils on medium ridgetops and side slopes; the sloping Wedowee, Pacolet, and Lockhart soils on narrow ridges and areas around streams; steep areas of Rock land and rock outcrops; and the Chewacla and Wehadkee soils on stream flood plains.

The less sloping areas in this association have been cultivated. About 90 percent is now wooded, and 10 percent is pasture or in other uses.

The soils in this association are better suited to trees or pasture mixtures than to cultivated crops. They respond fairly well to management. Suitability for pines is moderate.

Sites are available in many areas for stockwater and recreation ponds.

Sloping to Steep Soils That Have a Clayey, Loamy, or Slaty and Loamy Subsoil; on Narrow Ridges and Side Slopes

In the six soil associations of this group, the soils are mostly moderately deep to shallow over weathered rock. They are well-drained to somewhat excessively drained soils of the uplands. The texture of the surface layer ranges from slaty silt loam, which is typical of the shallow soils, to clay loam, in areas where erosion has been severe.

8. Tatum-Nason Association

Well-drained soils that have a clay to silty clay loam subsoil; moderately deep over weathered rock

This association consists of strongly sloping to moderately steep soils along drainageways.

This association makes up about 6 percent of the county, or 30 square miles. About 45 percent of the association is Tatum soils and 20 percent is Nason soils. The rest is less extensive soils.

Tatum soils have a surface layer of light-brown loam. The subsoil is red clay in the main part.

Nason soils have a surface layer of light yellowish-brown loam. The subsoil is yellowish-red silty clay loam in the main part.

Among the less extensive soils in this association are the gently sloping to strongly sloping Georgeville and Herndon soils on ridgetops and side slopes; the Goldston and Pickens soils on narrow ridgetops and sharp breaks; the Chewacla and Wehadkee soils on stream flood plains; and the Altavista and Masada soils on low stream terraces.

The less sloping soils have been cleared and cultivated. About 60 percent of the association is now wooded, 30 percent is pasture, and 10 percent is cultivated. Suitability for pines is moderate.

9. Pacolet-Lockhart-Wilkes Association

Well-drained soils that have a clay loam to sandy clay loam subsoil; deep to shallow over weathered rock

This association consists of moderately steep to steep soils near the larger streams and drainageways.

This association makes up about 5 percent of the county, or 25 square miles. About 25 percent of the association is Pacolet soils, 20 percent is Lockhart soils, and 12 percent is Wilkes soils. The rest is less extensive soils.

Pacolet soils are moderately deep over weathered rock. They have a surface layer of dark-brown sandy loam to clay loam. The subsoil is friable to firm, red clay loam.

Lockhart soils are deep. They have a surface layer of dark grayish-brown gravelly sandy loam. The subsoil is friable, yellowish-red sandy clay loam. It is more than 35 percent gravel.

Wilkes soils are shallow over weathered rock. They have a surface layer of brown sandy loam and a subsoil of friable to firm, yellowish-brown clay loam.

Among the less extensive soils in this association are the Appling, Durham, and Wickham soils on medium ridgetops and side slopes; the Wedowee soils on breaks around drainageways; the Wickham soils on

low stream terraces; and the Chewacla, Wehadkee, and Congaree soils on stream flood plains.

Only a small part of this association has been cultivated. About 95 percent is now wooded, and 5 percent is pasture, is idle, or is cultivated.

The soils in this association are low in organic-matter content. They are not suitable for cultivation. Their suitability for pines is medium.

Sites are available in many areas for stockwater and recreation ponds. Many sites are available for plantings that provide food for wildlife. Care is needed in selecting these sites.

10. Wedowee-Wilkes-Gullied Land Association

Well-drained soils that have a mainly clay loam subsoil; moderately deep to shallow over weathered rock

This association consists of strongly sloping to steep soils.

This association makes up about 5 percent of the county, or 25 square miles. It is about 45 percent Wedowee soils, 24 percent Wilkes soils, and 9 percent Gullied land. The rest is less extensive soils.

Wedowee soils are moderately deep over weathered rock. Their surface layer is light brownish-gray sandy loam. The subsoil is moderately thick and is dominantly reddish-yellow clay loam.

Wilkes soils are shallow over weathered rock. They have a surface layer of brownish sandy loam. The subsoil is friable to firm, yellowish-brown clay loam.

Gullied land is mainly Helena soil material that has been cut by many shallow gullies and a few deep gullies. Between the gullies is reddish-brown to yellowish-brown plastic, clayey soil material.

Among the less extensive soils in this association are the gently sloping to sloping Helena and Appling soils on ridges and side slopes; the steep Pacolet and Lockhart soils on narrow ridges and side slopes; and the Chewacla and Wehadkee soils on stream flood plains.

The soils in this association are not suitable for cultivation, but a few of the less eroded and less sloping areas are cultivated. About 90 percent of the association is wooded, and 10 percent is idle or is used for pasture. Suitability for pines is moderate to low.

Sites are available for plantings that furnish food for wildlife. Sites are also available for recreation and stockwater ponds.

11. Pacolet-Lockhart-Gullied Land Association

Well-drained soils that have a clay loam to sandy clay loam subsoil; moderately deep or deep over weathered rock

This association consists of moderately steep to steep soils in areas of rough relief near the Catawba River in the southwestern part of the county.

This association makes up about 2 percent of the county, or 10 square miles. About 35 percent of the association is Pacolet soils, 30 percent is Lockhart soils, and 20 percent is Gullied land. The rest is less extensive soils.

Pacolet soils are moderately deep over weathered rock. Their surface layer is dark-brown sandy loam to clay loam. The subsoil is friable to firm, red clay loam. The material below the subsoil is commonly very friable. Where it is exposed to moving water, the erosion hazard is very severe.

Lockhart soils have a surface layer of deep, dark grayish-brown gravelly sandy loam. The subsoil is friable, brownish to reddish gravelly sandy clay loam. It is more than 35 percent gravel.

Gullied land is mainly Cecil soil material that has been cut by caving gullies 5 to 20 feet deep. Between the gullies is reddish-brown to yellowish-brown, clayey soil material.

Among the less extensive soils in this association are the Wedowee soils on narrow ridgetops and side slopes; the Wehadkee soils on stream flood plains; and a few small areas of Rock land. Areas of Rock land are about 50 percent large boulders and rock outcrops.

The soils of this association are not suitable for cultivation and in most areas are not suitable for pasture. About 98 percent of the association is wooded, and 2 percent is idle.

12. Goldston-Pickens Association

Well-drained to somewhat excessively drained soils that have a slaty silt loam subsoil; moderately deep to shallow over weathered rock

This association consists of gently sloping to strongly sloping soils on ridges.

This association makes up about 3 percent of the county, or 15 square miles. About 25 percent of the association is Goldston soils, and about 25 percent is Pickens soils. The rest is less extensive soils.

Goldston soils are moderately deep over weathered rock. They have a surface layer of yellowish-brown slaty silt loam and a subsoil of brown silt loam.

Pickens soils are intricately associated with Goldston soils and are similar in color and texture. Pickens soils have hard rock within a depth of 20 inches.

Among the less extensive soils in this association are the Herndon, Nason, Tatum, Georgeville, and Gills soils on medium ridges and side slopes; and the Congaree and Chewacla soils on stream flood plains.

Except for the more sloping areas, most of this association has been cultivated. About 70 percent of the association is now wooded, 20 percent is pasture, and 10 percent is cultivated, idle, or in other uses.

The major soils of this association are droughty and low in fertility and are poorly suited to cultivated crops. They are better suited to pasture mixtures and trees. Suitability for pines ranges from low to moderate.

13. Pickens-Nason Association

Well-drained to somewhat excessively drained soils that have a slaty silt loam to silty clay loam subsoil; shallow or moderately deep over weathered rock

This association consists of strongly sloping to steep soils along the breaks of major drainageways.

This association makes up about 1 percent of the county, or 5 square miles. About 80 percent of the association is Pickens soils and 10 percent is Nason soils. The rest is less extensive soils.

Pickens soils have a surface layer of light yellowish-brown slaty silt loam. The subsurface layer is very thin, discontinuous, strong-brown slaty silt loam broken by intrusions of slaty rock fragments. Hard rock is within a depth of 20 inches.

Nason soils are moderately deep over weathered rock. Their surface layer is light yellowish-brown loam. The subsoil is yellowish-red silty clay loam.

Among the less extensive soils in this association are the Goldston soils on narrow ridges and breaks to streams; the Chewacla soils on stream flood plains; and the Wickham soils on stream terraces.

About 65 percent of this association is wooded, 25 percent is pasture, and 10 percent is idle.

These soils are not suited to cultivated crops. They are fairly well suited to pasture grasses in the less sloping areas. Suitability for pines is moderate to low.

Nearly Level to Strongly Sloping Soils That Have a Sandy Surface Layer and a Sandy to Loamy Subsoil; on Broad Ridges and Side Slopes

Only one soil association is in this group. The soils are somewhat excessively drained to well drained and are on uplands of the Sandhills.

14. Blanton-Wagram-Vaucluse Association

Deep, somewhat excessively drained to well-drained soils that have a loamy sand to sandy clay loam subsoil

This association consists of nearly level soils on broad ridges and gently sloping to strongly sloping soils on side slopes. It extends from Heath Springs northeastward along the county boundary.

This association makes up about 12 percent of the county, or about 61 square miles. About 40 percent of the association is Blanton soils, 13 percent is Wagram soils, and 6 percent is Vaucluse soils. The rest is less extensive soils.

Blanton soils have a surface layer of dark grayish-brown sand. Below this is light yellowish-brown or pale-brown sand or loamy sand.

Wagram soils have a surface layer of light olive-brown sand. The subsoil is mainly yellowish-brown sandy clay loam.

Vaucluse soils have a surface layer of dark grayish-brown loamy sand. The subsoil is mottled yellowish-brown and yellowish-red sandy clay loam. It is underlain by a compact, brittle, sandy clay loam fragipan.

Among the less extensive soils in this association are the Blaney, Chesterfield, Eustis, and Appling soils on medium ridges and side slopes; the Pacolet soils on breaks to drainageways; and the Rutlege soils in depressions and drainageways.

About 65 percent of this association is wooded, 15 percent is cultivated, 5 percent is pasture, and 15 percent is idle or in other uses.

The soils of this association are droughty and are subject to excessive leaching. They are generally not well suited to locally grown crops or pasture mixtures. Some of the sandy soils are suited to Coastal bermudagrass. Suitability for pines is moderate to moderately high.

Sites are available in many areas for stockwater and recreation ponds. Many sites are suited to plantings that provide food for wildlife.

DESCRIPTIONS OF THE SOILS

This section describes the soil series and mapping units in Lancaster County. Each soil series is described in considerable detail, and then, briefly, each mapping unit in that series. Unless it is specifically mentioned otherwise, it is to be assumed that what is stated about the soil series holds true for the mapping units in that series. Thus, to get full information about any one mapping unit, it is necessary to read both the description of the mapping unit and the description of the soil series to which it belongs.

An important part of the description of each soil series is the soil profile, that is, the sequence of layers from the surface downward to rock or other underlying material. Each series contains two descriptions of this profile. The first is brief and in terms familiar to the layman. The second, detailed and in technical terms, is for scientists, engineers, and others who need to make thorough and precise studies of soils. Unless it is otherwise stated, the colors given in the descriptions are those of a moist soil.

The symbols, for example, "Ap" or "B21t," that identify the various layers, or horizons, have special meanings to soil scientists and others who make a special study of soil. Most readers need to remember only that all symbols beginning with the letter "A" refer to the surface layer, those beginning with "B" refer to the subsoil, and those beginning with "C" refer to the substratum, or parent material. It may be helpful to remember that the letter "p" indicates a disturbed, or plowed, layer and that the letter "t" indicates an accumulation of clay.

As mentioned in the section "How This Survey Was Made," not all mapping units are members of a soil

series. Rock land, for example, does not belong to a soil series, but nevertheless is listed in alphabetic order along with the soil series.

Following the name of each mapping unit is a symbol in parentheses. This symbol identifies the mapping unit on the detailed soil map. Listed at the end of each description of a mapping unit are the capability unit and woodland group in which the mapping unit has been placed. The page for the description of each capability unit can be found by referring to the "Guide to Mapping Units" at the back of this survey.

The acreage and proportionate extent of each mapping unit are shown in table 1. Many of the terms used in describing soils can be found in the Glossary at the end of this survey, and more detailed information about the terminology and methods of soil mapping can be obtained from the "Soil Survey Manual" (13) 1/.

1/ Underscored numbers in parentheses refer to Literature Cited, p. 126.

TABLE 1.--APPROXIMATE ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Soil	Acres	Percent	Soil	Acres	Percent
Appling fine sandy loam, 2 to 6 percent slopes, eroded	5,798	2.0	Davidson clay loam, 10 to 15 percent slopes, eroded	601	0.2
Appling fine sandy loam, 6 to 10 percent slopes, eroded	5,123	1.6	Durham loamy sand, 2 to 6 percent slopes	1,397	.4
Appling fine sandy loam, 10 to 15 percent slopes, eroded	2,997	.9	Durham loamy sand, 2 to 6 percent slopes, eroded	996	.3
Appling sandy clay loam, 6 to 10 percent slopes, severely eroded	644	.2	Durham loamy sand, 6 to 10 percent slopes, eroded	626	.2
Appling sandy clay loam, 10 to 15 percent slopes, severely eroded	477	.1	Enon loam, 2 to 6 percent slopes, eroded	1,709	.5
Appling and Chesterfield soils, 2 to 6 percent slopes, eroded	994	.3	Enon loam, 6 to 10 percent slopes, eroded	1,750	.5
Appling and Chesterfield soils, 6 to 10 percent slopes, eroded	1,574	.8	Enon loam, 10 to 25 percent slopes, eroded	797	.3
Appling and Chesterfield soils, 10 to 15 percent slopes, eroded	1,297	.4	Enon clay loam, 2 to 6 percent slopes, severely eroded	210	.1
Blaney sand, 6 to 10 percent slopes	926	.3	Enon clay loam, 6 to 15 percent slopes, severely eroded	915	.3
Blanton sand, 0 to 6 percent slopes	11,662	3.6	Eustis loamy sand, 0 to 6 percent slopes	281	.1
Blanton sand, 6 to 15 percent slopes	4,223	1.3	Eustis loamy sand, 6 to 15 percent slopes	119	(1/)
Cecil fine sandy loam, 2 to 6 percent slopes, eroded	7,549	2.3	Georgeville silt loam, 2 to 6 percent slopes, eroded	11,857	3.7
Cecil fine sandy loam, 6 to 10 percent slopes, eroded	1,906	.6	Georgeville silt loam, 6 to 10 percent slopes, eroded	4,648	1.4
Cecil fine sandy loam, 10 to 15 percent slopes, eroded	4,088	1.3	Georgeville silty clay loam, 2 to 6 percent slopes, severely eroded	6,930	2.1
Cecil fine sandy loam, 15 to 25 percent slopes, eroded	2,684	.8	Georgeville silty clay loam, 6 to 10 percent slopes, severely eroded	9,318	2.9
Cecil clay loam, 2 to 6 percent slopes, severely eroded	5,372	1.7	Gills silt loam, 2 to 6 percent slopes	5,266	1.6
Cecil clay loam, 6 to 10 percent slopes, severely eroded	7,942	2.4	Gills silt loam, 2 to 6 percent slopes, eroded	2,831	.9
Cecil clay loam, 10 to 25 percent slopes, severely eroded	12,408	3.8	Gills silt loam, 6 to 10 percent slopes, eroded	2,286	.7
Chewacla soils	16,978	5.1	Goldston-Pickens complex, 2 to 6 percent slopes	1,053	.3
Colfax fine sandy loam, 2 to 6 percent slopes	828	.3	Goldston-Pickens complex, 6 to 10 percent slopes	4,543	1.4
Congaree soils	277	.1	Gullied land, Cecil soil material, sloping	2,472	.8
Davidson clay loam, 2 to 6 percent slopes, eroded	2,281	.7			
Davidson clay loam, 6 to 10 percent slopes, eroded	879	.3			

TABLE 1.--APPROXIMATE ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Soil	Acres	Percent	Soil	Acres	Percent
Gullied land, Cecil soil material, steep	1,283	0.4	Pacolet sandy loam, 10 to 15 percent slopes, eroded	1,557	0.5
Gullied land, Georgeville soil material, sloping	883	.3	Pacolet sandy loam, 15 to 25 percent slopes, eroded	2,053	.6
Gullied land, Helena soil material, steep	1,511	.5	Pacolet sandy loam, 25 to 40 percent slopes, eroded	1,924	.6
Helena fine sandy loam, 2 to 6 percent slopes	745	.2	Pacolet clay loam, 2 to 6 percent slopes, severely eroded	608	.2
Helena fine sandy loam, 2 to 6 percent slopes, eroded	7,833	2.4	Pacolet clay loam, 6 to 10 percent slopes, severely eroded	4,082	1.3
Helena fine sandy loam, 6 to 10 percent slopes, eroded	5,760	1.8	Pacolet clay loam, 10 to 15 percent slopes, severely eroded	3,381	1.0
Helena fine sandy loam, 2 to 10 percent slopes, severely eroded	2,707	.8	Pacolet clay loam, 15 to 25 percent slopes, severely eroded	1,531	.5
Herndon silt loam, 2 to 6 percent slopes, eroded	15,859	4.9	Pickens slaty silt loam, 10 to 25 percent slopes	6,098	1.9
Herndon silt loam, 6 to 10 percent slopes, eroded	13,338	4.1	Pickens slaty silt loam, 25 to 35 percent slopes	456	.1
Herndon silt loam, 10 to 15 percent slopes, eroded	8,583	2.7	Rock land	502	.1
Herndon silty clay loam, 2 to 6 percent slopes, severely eroded	626	.2	Rutlege loamy sand	545	.2
Herndon silty clay loam, 6 to 10 percent slopes, severely eroded	5,070	1.6	Starr soils	862	.3
Iredell complex, 2 to 6 percent slopes, eroded	1,006	.3	Tatum loam, 10 to 15 percent slopes, eroded	6,996	2.2
Iredell complex, 6 to 10 percent slopes, eroded	204	.1	Tatum loam, 15 to 25 percent slopes, eroded	4,033	1.2
Lockhart gravelly sandy loam, 2 to 6 percent slopes	300	.1	Tatum silty clay loam, 10 to 25 percent slopes, severely eroded	6,125	1.9
Lockhart gravelly sandy loam, 6 to 10 percent slopes	1,027	.3	Vaucluse and Blaney loamy sands, 2 to 6 percent slopes	584	.2
Lockhart gravelly sandy loam, 10 to 15 percent slopes	2,315	.7	Vaucluse and Blaney loamy sands, 6 to 10 percent slopes	1,629	.5
Lockhart gravelly sandy loam, 15 to 25 percent slopes	2,025	.6	Vaucluse and Blaney loamy sands, 10 to 15 percent slopes	881	.3
Lockhart gravelly sandy loam, 25 to 40 percent slopes	2,732	.8	Wagram sand, 2 to 6 percent slopes	3,911	1.2
Masada and Altavista soils, 2 to 6 percent slopes	1,820	.6	Wagram sand, 6 to 10 percent slopes	1,033	.3
Mecklenburg fine sandy loam, 2 to 6 percent slopes, eroded	749	.2	Wagram sand, 10 to 15 percent slopes	604	.2
Mecklenburg fine sandy loam, 6 to 10 percent slopes, eroded	608	.2	Wedowee sandy loam, 10 to 25 percent slopes, eroded	7,453	2.3
Mecklenburg fine sandy loam, 10 to 15 percent slopes, eroded	428	.1	Wehadkee and Chewacla soils	5,946	1.8
Mecklenburg clay loam, 6 to 10 percent slopes, severely eroded	357	.1	Wickham sandy loam, 2 to 6 percent slopes, eroded	883	.3
Nason loam, 10 to 15 percent slopes, eroded	1,750	.5	Wickham sandy loam, 6 to 10 percent slopes, eroded	279	.1
Nason loam, 15 to 25 percent slopes, eroded	2,841	.9	Wickham sandy clay loam, 6 to 10 percent slopes, severely eroded	246	.1
Nason silty clay loam, 10 to 25 percent slopes, severely eroded	2,875	.9	Wilkes sandy loam, 6 to 10 percent slopes, eroded	536	.2
Pacolet sandy loam, 2 to 6 percent slopes, eroded	1,875	.6	Wilkes sandy loam, 10 to 15 percent slopes, eroded	2,003	.6
Pacolet sandy loam, 6 to 10 percent slopes, eroded	2,135	.7	Wilkes sandy loam, 15 to 35 percent slopes	5,955	1.8
			Worsham fine sandy loam	1,107	.3
			Total	322,560	100.0

1/ Less than 0.05 percent.

Altavista Series

The Altavista series consists of deep, moderately well drained, gently sloping soils on terraces along streams.

In a representative profile, the surface layer is yellowish-brown fine sandy loam about 7 inches thick. The subsoil extends to a depth of 50 inches. The upper part is pale-brown sandy loam that grades to light brownish-gray sandy clay. The lower part is light yellowish-brown sandy loam. Grayish mottles are within a depth of 30 inches. Depth to bedrock is 5 to 15 feet.

Altavista soils are used mostly for woodland and pasture. Small areas are cultivated. Flooding occurs once in 5 years and is a slight hazard. The organic-matter content is low. Permeability is moderate, and available water capacity is high.

The Altavista soils in this county are mapped only with Masada soils.

Representative profile of Altavista fine sandy loam, in a wooded area of Masada and Altavista soils, 2 to 6 percent slopes, about 4 miles southwest of Van Wyck along the Catawba River:

O1--1 inch to 0, pine needles.
Ap--0 to 7 inches, yellowish-brown (10YR 5/4) fine sandy loam; weak, fine, granular structure; loose; few fine tree roots; strongly acid; clear, smooth boundary.
B1--7 to 18 inches, pale-brown (10YR 6/3) sandy loam; few, fine, faint, light yellowish-brown and brownish-yellow mottles; moderate, coarse, granular structure; very friable, slightly sticky; common fine and medium tree roots; strongly acid; gradual, smooth boundary.
B21t--18 to 31 inches, light yellowish-brown (10YR 6/4) sandy clay loam; common, coarse, faint, light brownish-gray (10YR 6/2) mottles and common, medium, faint, yellowish-brown mottles; moderate, medium, subangular blocky structure; friable, sticky; patchy faint clay films on ped faces; few medium tree roots; few fine mica flakes and few, fine, round pebbles; strongly acid; clear, wavy boundary.
B22t--31 to 40 inches, light brownish-gray (10YR 6/2) sandy clay; common, medium, faint, yellowish-brown mottles; weak, coarse, subangular blocky structure; firm, slightly plastic; patchy distinct clay films on vertical ped faces; few medium tree roots; few fine mica flakes; few fine pebbles; strongly acid; clear, wavy boundary.
B3t--40 to 50 inches, light yellowish-brown (10YR 6/4) sandy loam; few, coarse, faint, light brownish-gray (10YR 6/2) mottles and common, medium, faint, yellowish-brown mottles; weak, coarse, subangular blocky structure; friable, slightly sticky; sand grains coated and bridged with clay; few fine mica flakes; strongly acid; gradual, wavy boundary.
C--50 to 65 inches, light yellowish-brown (10YR 6/4) and pale-brown (10YR 6/3) stratified sand, silt, and clay that are sandy loam where mixed; common, fine and medium, faint, brown, yellow, and gray mottles; structureless; very friable, nonsticky; few fine mica flakes; few fine pebbles; very strongly acid.

The A horizon ranges from 6 to 11 inches in thickness and from yellowish brown to very pale brown and very dark grayish brown in color. The Bt horizon is brownish yellow, light yellowish brown, or reddish yellow and has few to common mottles of light brownish gray to light gray between depths of 18 and 30 inches. In places it is light brownish gray below a depth of 30 inches. The B horizon is sandy loam, sandy clay loam, sandy clay, silt loam, or clay loam.

The solum ranges from 27 to 60 inches in thickness. Discontinuous strata of rounded pebbles and thin strata of coarse sand grains are common. Fine mica flakes are few to common in most of the B horizon. Reaction is very strongly acid to strongly acid throughout the A and B horizons and very strongly acid in the C horizon.

Altavista soils occur with Masada and Worsham soils. They are not so well drained as Masada soils. They are better drained than Worsham soils.

Appling Series

The Appling series consists of deep, well-drained soils that formed in residuum from acid crystalline rock, such as granite, gneiss, and schist. Slopes range from 2 to 15 percent.

In a representative profile, the surface layer is grayish-brown fine sandy loam about 7 inches thick. The subsoil is strong-brown and red clay that extends to a depth of 46 inches. Depth to bedrock is more than 10 feet.

Most Appling soils are suitable for cultivation and respond to irrigation and fertilization. Permeability is moderate. Infiltration is moderately rapid where the surface layer is fine sandy loam and moderately slow where it is sandy clay loam. The available water capacity is medium. The organic-matter content is low.

Representative profile of Appling fine sandy loam, 2 to 6 percent slopes, eroded, in an idle field 2 1/2 miles northeast of Van Wyck on County Road No. 125:

Ap--0 to 7 inches, grayish-brown (10YR 5/2) fine sandy loam; weak, fine, granular structure; very friable; many fine roots; few fine holes; few fine pores; few quartz pebbles 5 to 60 millimeters in size; slightly acid; clear, wavy boundary.
B21t--7 to 12 inches, strong-brown (7.5YR 5/8) clay; many, fine, distinct, brownish-yellow mottles and few, fine, distinct, yellowish-red mottles; weak, fine, subangular blocky structure; friable, slightly sticky; patchy faint clay films on peds; few fine roots; few fine and medium holes; few fine pores; medium acid; gradual, wavy boundary.

B22t--12 to 30 inches, strong-brown (7.5YR 5/8) clay; many, medium, distinct, red mottles; moderate, fine and medium, subangular blocky structure; firm, slightly sticky; patchy distinct clay films on peds; few fine roots; few fine holes; few fine pores; few fine krotovinas; very strongly acid; gradual, wavy boundary.

B3t--30 to 46 inches, red (2.5YR 5/6) clay; common, fine and medium, distinct, reddish-yellow mottles; weak, fine and medium, subangular blocky structure; friable, slightly sticky; patchy faint clay films on peds; few fine roots in upper part; very strongly acid; gradual, wavy boundary.

C--46 to 72 inches, light-red (2.5YR 6/8), highly weathered rock material that crushes to silty clay loam; structureless; very friable, slightly sticky; very strongly acid.

The A horizon is grayish-brown, pale-brown, light yellowish-brown, brown, strong-brown, or light reddish-brown loam, loamy fine sand, or fine sandy clay loam. Some profiles have a B1 horizon 3 to 8 inches thick. The B2t horizon is clay loam, sandy clay, or clay and is red, reddish yellow, yellowish red, or strong brown. The B horizon ranges from 30 to 45 inches in thickness. The C horizon is highly weathered rock that crushes to loam, silty clay loam, sandy clay loam, or sandy loam. It is red, light red, yellowish red, or strong brown commonly mottled with shades of red, brown, yellow, or gray. Reaction is slightly acid in the A horizon, very strongly acid to medium acid in the B horizon, and very strongly acid in the C horizon.

Appling soils occur with Cecil, Pacolet, Wedowee, Durham, Chesterfield, and Helena soils. They are intermediate in color between the red subsoil of Cecil soils and the yellowish-brown subsoil of Durham soils. They have a thicker surface layer than Cecil soils and a thinner surface layer than Durham soils. They have a more clayey subsoil than Durham soils and a less silty subsoil than Chesterfield soils. They are better drained than Helena soils and have a thicker solum than Wedowee or Pacolet soils.

Appling fine sandy loam, 2 to 6 percent slopes, eroded (ApB2).--This soil is on medium and narrow ridges. It has the profile described as representative of the series. Erosion has removed 25 to 75 percent of the original surface layer. Rills and small and medium-size galled areas are common.

Included with this soil in mapping are small patches where the surface layer is gravelly sandy loam, sandy loam, or sandy clay loam; small areas of Cecil, Durham, Chesterfield, Wedowee, Pacolet, and Lockhart soils; and some small areas on ridgetops where slopes are less than 2 percent and others where they are 6 to 10 percent. Inclusions make up about 15 percent of this mapping unit.

Tilth and infiltration of the plow layer are favorable for seed germination, and uniform stands of crops are easy to obtain. In many places tillage extends into the subsoil.

Most of the acreage is used for cultivated crops and pasture. Some areas are wooded. All crops common to the county are grown. Controlling erosion and maintaining the organic-matter content are the chief concerns in management. Capability unit IIe-2; woodland group 3o7.

Appling fine sandy loam, 6 to 10 percent slopes, eroded (ApC2).--This deep, well-drained soil is on narrow ridges and side slopes. Erosion has removed 25 to 75 percent of the original surface horizon. Rills and medium-size galled areas are common.

Included with this soil in mapping are areas of soils that have a surface layer of loamy fine sand, sandy loam, or sandy clay loam; small areas of Cecil, Durham, Chesterfield, Wedowee, Pacolet, and Lockhart soils; and small areas where slopes are less than 6 percent and a few where they range from 10 to 15 percent. Inclusions make up about 10 percent of this mapping unit.

This Appling soil can be tilled within a medium range of moisture content. Tilth and infiltration of the plow layer are favorable for seed germination, and uniform stands of crops are easy to obtain.

About half the acreage is used for pasture and cultivated crops. Part of the acreage is forest, and the rest is idle. Cotton, corn, grain sorghum, oats, tall fescue, and white clover are grown. Controlling erosion and runoff and maintaining the organic-matter content are the chief concerns in management. Capability unit IIIe-2; woodland group 3o7.

Appling fine sandy loam, 10 to 15 percent slopes, eroded (ApD2).--This deep, well-drained soil is on narrow ridges. Erosion has removed 25 to 75 percent of the original surface layer. Some shallow gullies and a few deep gullies have formed.

Included with this soil in mapping are small areas of Cecil, Lockhart, Wedowee, and Pacolet soils; and a few areas where slopes are less than 10 percent and a few where they are 15 to 25 percent. Inclusions make up about 20 percent of this mapping unit.

Most of the acreage is wooded. Only a small part is pasture. Tilth is a management concern in eroded areas. Capability unit IVe-1; woodland group 3o7.

Appling sandy clay loam, 6 to 10 percent slopes, severely eroded (AsC3).--This deep, well-drained soil is on medium to narrow ridges. It has a profile similar to the one described as representative of the series, but its surface layer is sandy clay loam and the combined surface layer and subsoil is about 6 inches thinner. Erosion has removed all of the original surface layer and up to 25 percent of the subsoil. The soil is about 50 percent small gullies, rills, and large galled areas.

Included with this soil in mapping are small areas of gravelly sandy loams, loams, and fine sandy loams; small areas of Cecil, Durham, Helena, Lockhart, Wedowee, and Pacolet soils; and a few small areas where slopes are less than 6 percent and a few where they are 10 to 15 percent. Inclusions make up about 15 percent of this mapping unit.

Poor tilth impedes seed germination, and uniform stands of crops are difficult to obtain. Clodding and crusting when this Appling soil is tilled are concerns in management. Runoff is rapid.

Nearly all the acreage has been cultivated, but now most of it is pasture and woodland, and the rest is idle. Controlling erosion and maintaining the organic-matter content are the chief concerns in management. Capability unit IVe-1; woodland group 4c2e.

Appling sandy clay loam, 10 to 15 percent slopes, severely eroded (AsD3).--This deep, well-drained soil is on side slopes. It has a profile similar to the one described as representative of the series, but its surface layer is sandy clay loam and the combined surface layer and subsoil are about 6 inches thinner. In many places erosion has removed all of the original surface layer and up to 25 percent of the subsoil. The galled areas are smaller and there are more shallow gullies on this soil than on Appling sandy clay loam, 6 to 10 percent slopes, severely eroded.

Included in mapping are areas of Appling sandy clay loam, 6 to 10 percent slopes, severely eroded; medium-size areas where the original surface layer is 6 inches thick; and small areas where slopes are 15 to 25 percent. Inclusions make up about 15 percent of this mapping unit.

Part of the acreage has been cultivated, but now most of the acreage is pasture and woodland. The rest is idle. Controlling erosion and maintaining good tilth and the organic-matter content are the chief concerns in management. Capability unit VIe-1; woodland group 4c2e.

Appling and Chesterfield soils, 2 to 6 percent slopes, eroded (AtB2).--This mapping unit is about 40 percent Appling soils and 40 percent Chesterfield soils. Management of the two soils is so much alike that it is not practical to consider them separately. These soils are on broad ridgetops and side slopes. Some mapped areas are Appling soil, some are Chesterfield soil, and some contain both soils and small inclusions of less extensive soils. Mapped areas range from 10 to about 50 acres in size.

The Chesterfield soil has the profile described under the heading "Chesterfield Series."

Included with this soil in mapping are areas of Durham, Wagram, and Blanton soils and small areas of Nason, Tatum, Herndon, and Georgeville soils.

These Appling and Chesterfield soils are suitable for cultivation. The plow layer is easy to keep in good tilth and can be worked throughout a wide range of moisture content without clodding. Crops respond favorably to applications of fertilizer and lime. All crops common to the county are grown. Controlling erosion and maintaining the organic-matter content are the major concerns in management. Capability unit IIe-2; woodland group 3o7.

Appling and Chesterfield soils, 6 to 10 percent slopes, eroded (AtC2).--This mapping unit is about 45 percent Appling soils and 35 percent Chesterfield soils. Management of the two soils is so much alike that it is not practical to consider them separately. These soils are on breaks near drainageways. Some areas are Appling soil, some are Chesterfield soil, and some contain both soils and small inclusions of less extensive soils. Mapped areas are commonly much longer than they are wide and range from 5 to 40 acres in size.

Wagram, Blaney, Vaucluse, Nason, Herndon, Tatum, and Georgeville are the less extensive soils included in mapping.

These Appling and Chesterfield soils are suitable for cultivation. The plow layer is easy to keep in good tilth and can be worked throughout a wide range of moisture content without clodding. Crops respond favorably to applications of fertilizer and lime. Cotton, corn, grain sorghum, and oats are the chief crops. Tall fescue and white clover are grown for pasture. Controlling erosion and maintaining organic-matter content are the major concerns in management. Capability unit IIIe-2; woodland group 3o7.

Appling and Chesterfield soils, 10 to 15 percent slopes, eroded (AtD2).--This mapping unit is about 35 percent Appling soils and 30 percent Chesterfield soils. Management of the two soils is so much alike that it is not practical to consider them separately. These soils are on breaks near drainageways. Some mapped areas are Appling soil, some are Chesterfield soil, and some contain both soils and small inclusions of less extensive soils. Mapped areas are long and narrow and average about 10 acres in size.

Blaney, Vaucluse, Nason, Herndon, and Tatum are the less extensive soils included in mapping.

The plow layer is easy to keep in good tilth and can be worked throughout a wide range of moisture content without clodding. Because of the strong slopes and undulating relief, however, the erosion hazard is severe in disturbed areas. Consequently, these soils are not suited to frequent cultivation. Part of the acreage is idle. The rest is forest and pasture. Capability unit IVe-1; woodland group 3o7.

Blaney Series

The Blaney series consists of deep, well-drained soils that formed in marine or fluvial deposits. Slopes are 6 to 10 percent.

In a representative profile, the surface layer is grayish-brown sand about 4 inches thick. The subsurface layer is light yellowish-brown sand about 22 inches thick. Below this is a hard, brittle fragipan of sandy clay loam that is light yellowish brown in the upper part and red in the lower part. The pan extends to a depth of 50 inches. Depth to bedrock is more than 15 feet.

Most of the acreage is wooded. Blaney soils are droughty and do not respond to management as well as many of the other soils in the county. They are low in organic-matter content and low in available water capacity. Infiltration is rapid. Permeability is slow.

Representative profile of Blaney sand, 6 to 10 percent slopes, north of the town of Kershaw and about 500 yards east of Northside School:

A1--0 to 4 inches, grayish-brown (2.5Y 5/2) sand; weak, fine, granular structure; many fine roots; strongly acid; clear, smooth boundary.

A2--4 to 26 inches, light yellowish-brown (2.5Y 6/4) sand; weak, fine, granular structure; few fine roots; strongly acid; gradual, wavy boundary.

Bx1--26 to 36 inches, light yellowish-brown (10YR 6/4) sandy clay loam; weak, fine, subangular blocky structure; firm; slightly sticky, slightly brittle, hard; few medium roots; few medium and large holes; very strongly acid; clear, wavy boundary.

Bx2--36 to 50 inches, red (2.5YR 4/6) sandy clay loam; many, medium and coarse, distinct and prominent, light-gray (5YR 7/1), reddish-yellow (7.5YR 6/6), and light-red (2.5YR 6/6) mottles; weak, fine, subangular blocky structure; firm in place but crushes readily; slightly sticky, slightly brittle; strongly acid; clear, wavy boundary.

The A horizon ranges from 20 to 40 inches in thickness. The A1 or Ap horizon ranges from dark grayish brown to grayish brown or light brownish gray. The A2 horizon is pale-brown, brown, light yellowish-brown, or grayish-brown sand or loamy sand. The Bx horizon is brown, yellowish-brown, light yellowish-brown, yellowish-red, or red sandy clay loam to sandy clay. Reaction is strongly acid in the A horizon and very strongly acid or strongly acid in the Bx horizon.

Blaney soils occur with Vaucluse, Eustis, Blanton, and Wagram soils. They have a thicker surface layer than Vaucluse soils. They have a finer textured subsoil than Eustis and Blanton soils. Compared with Wagram soils, they have a brittle subsoil and that of the Wagram soils is friable.

Blaney sand, 6 to 10 percent slopes (B1C).--This soil is on medium to narrow side slopes. It has the profile described as representative of the series.

Included with this soil in mapping are areas where the surface layer is loamy sand; a few very small areas around breaks and heads of draws where 5 to 10 percent of the soil material in the Bx horizon is slightly hard, red sesquioxide nodules 1 to 3 millimeters in size; a few areas of Vaucluse and Wagram soils; and a few small areas where slopes are 4 to 6 percent and a few where they are 10 to 15 percent. Inclusions make up about 14 percent of this mapping unit.

Most of the acreage is in pine and low-quality hardwoods. Some areas are in pasture, some are in grain sorghum, and some are in oats. Deep-rooted plants are better suited to this Blaney soil than shallow-rooted plants. Low available moisture, low organic-matter content, and low fertility are the major concerns in management. Capability unit IIIe-4; woodland group 4s2.

Blanton Series

The Blanton series consists of deep, somewhat excessively drained soils that formed in sandy marine sediment of the Sandhills and Upper Coastal Plain. These soils are on broad ridges and side slopes. Slopes range from 0 to 15 percent.

In a representative profile, the surface layer is dark grayish-brown sand about 7 inches thick. The subsurface layer is dominantly light yellowish-brown sand about 56 inches thick. The subsoil is light brownish-gray loamy sand. Depth to bedrock is more than 15 feet.

Blanton soils are droughty. They have a rapid infiltration rate and rapid permeability. The organic-matter content and available water capacity are low. Blanton soils are easy to cultivate. If irrigated and well fertilized, they are suited to most crops commonly grown in the county. Most of the acreage has been cultivated. Pines have been planted in many areas.

Representative profile of Blanton sand, 0 to 6 percent slopes, along County Road No. 219, 1 mile south of South Carolina Highway No. 265, 5 miles northeast of Kershaw:

Ap--0 to 7 inches, dark grayish-brown (10YR 4/2) sand; weak, medium, granular structure; loose; many fine roots; few fine holes; few fine pores; few coarse quartz grains; medium acid; clear, wavy boundary.

A21--7 to 30 inches, light yellowish-brown (10YR 6/4) sand; weak, fine, granular structure; loose; few fine roots; few medium roots in the upper 12 inches; few fine holes and pores; few soft lumps of slightly browner material 5 to 40 millimeters in size; medium acid; gradual, wavy boundary.

A22--30 to 41 inches, yellowish-brown (10YR 5/4) sand; moderate, medium, granular structure; loose; few fine roots; few fine pores; few dark-brown lumps 5 to 15 millimeters in size; few grayer parts 5 to 25 millimeters in size near lower boundary; strongly acid; diffuse, wavy boundary.

A23--41 to 63 inches, light yellowish-brown (10YR 6/4) to pale-brown (10YR 6/3) sand; colors varied and in no pattern; structureless; loose; few fine roots; medium acid; gradual, wavy boundary.

Bt--63 to 72 inches, light brownish-gray (10YR 6/2) loamy sand; common, medium, distinct, brown mottles of slightly finer materials; structureless; loose; strongly acid.

The Ap horizon ranges from 5 to 10 inches in thickness and is dark gray, dark brown, dark grayish brown, brown, or grayish brown. The A2 horizon ranges from 40 to 60 inches in thickness and is pale brown, light yellowish brown, or yellowish brown. The Bt horizon is light brownish-gray, very pale brown, or light yellowish-brown loamy sand or sandy loam and has mottles of brown, strong brown, reddish yellow, and gray. Reaction is strongly acid to medium acid in the A horizon and strongly acid in the B horizon.

Blanton soils occur with Eustis, Wagram, Blaney, and Vaucluse soils. They have a sandier subsurface layer than Eustis soils. They have a coarser subsoil than Wagram soils. They do not have the firm, brittle subsoil that is typical of Blaney and Vaucluse soils.

Blanton sand, 0 to 6 percent slopes (BnB).--This soil is on broad ridges and side slopes. It has the profile described as representative of the series.

Included with this soil in mapping are areas where the surface layer is loamy sand; small areas of Blaney and Eustis soils; a few small areas where about 10 percent of the soil material within a depth of 65 inches is sesquioxide nodules; and areas, about 3 percent of the acreage, of a sand that extends to a depth of 72 inches. Inclusions make up about 12 percent of this mapping unit.

The plow layer of this Blanton soil is easy to keep in good tilth and can be worked throughout a wide range of moisture content without clodding.

Most of the acreage is cultivated. Some areas are in pines and others in pasture. Melons, soybeans, corn, oats, cotton, and Coastal bermudagrass are grown. Low organic-matter content and droughtiness are the major concerns in management. Capability unit IVs-1; woodland group 3s2.

Blanton sand, 6 to 15 percent slopes (BnC).--This soil is on short side slopes.

Included with this soil in mapping are a few small areas of Eustis and Blaney soils; a few narrow strips at the slope break where 10 percent of the soil material within a depth of 65 inches is sesquioxide nodules; and areas of a soil, similar to this Blanton soil, that is sand to a depth of more than 72 inches. Inclusions make up about 15 percent of this mapping unit.

The plow layer of this Blanton soil is easy to keep in good tilth and can be worked throughout a wide range of moisture content without clodding.

Most of the acreage has been cleared, but now most of it is forest and pasture. Low organic-matter content and droughtiness are the major concerns in management. Capability unit VIs-1; woodland group 3s2.

Cecil Series

The Cecil series consists of deep, well-drained soils on the Piedmont Uplands. These soils formed in residuum from acid crystalline rock, such as granite, gneiss, and schist. Slopes are 2 to 25 percent.

In a representative profile, the surface layer is light yellowish-brown fine sandy loam about 5 inches thick. The subsoil extends to a depth of 58 inches. The upper part is mainly red clay loam. The middle part is red clay. The lower part is red clay loam. Depth to bedrock is more than 15 feet.

Cecil soils are widely distributed throughout the county. All but the moderately steep to steep soils are suitable for cultivation and respond to good management. Permeability is moderate, and available water capacity is medium. The organic-matter content is low. Infiltration is slow where the surface layer is clay loam and moderate where it is fine sandy loam.

Representative profile of Cecil fine sandy loam, 2 to 6 percent slopes, eroded, in a cultivated field near U.S. Highway No. 521; east of Van Wyck and 4 miles north of Andrew Jackson State Park:

Ap--0 to 5 inches, light yellowish-brown (10YR 6/4) fine sandy loam; weak, fine, granular structure; very friable; many fine roots; few fine mica flakes; few quartz pebbles; medium acid; clear, smooth boundary.

B1--5 to 7 inches, yellowish-red (5YR 5/6) sandy loam; moderate, medium, granular structure; very friable; common fine roots; strongly acid; clear, smooth boundary.

B21t--7 to 26 inches, red (2.5YR 4/8) clay loam; moderate, medium, subangular blocky structure; slightly hard, friable, slightly sticky; few root passages in upper half; few quartz fragments; medium acid; gradual, wavy boundary.

B22t--26 to 44 inches, red (2.5YR 4/6) clay; moderate, medium, subangular blocky structure; hard, firm, slightly sticky; few small quartz pebbles; few brown concretions; medium acid; gradual, wavy boundary.

B3t--44 to 58 inches, red (2.5YR 5/6) clay loam; weak, medium, subangular blocky structure; friable; few quartz pebbles and gneiss fragments; common very fine mica flakes; strongly acid; diffuse boundary.

C--58 inches, light-red (2.5YR 6/6), highly weathered rock that crushes to loam; structureless; very friable; common very fine mica flakes; evidence of rock structure in weathering parent material; over 20 feet to hard rock; strongly acid.

The A horizon is dark grayish-brown, dark-brown, light yellowish-brown, brown, reddish-brown, yellowish-red or red fine sandy loam or clay loam 2 to 10 inches thick. The B1 horizon is yellowish-red or red loam or clay loam 2 to 5 inches thick. The B2t horizon is clay, sandy clay, or clay loam 25 to 45 inches thick. The B3 horizon is yellowish-red or red clay loam or sandy clay loam 5 to 15 inches thick. Fine mica flakes range from few to common in the B horizon. The C horizon is red to light-red, highly weathered rock that crushes to loam, sandy loam, or sandy clay loam. Reaction is medium acid in the A horizon and strongly acid or medium acid in the B horizon.

Cecil soils occur with Appling, Durham, Enon, Mecklenburg, Davidson, Wedowee, Pacolet, Lockhart, and Wilkes soils. They are redder in the upper part of the subsoil than Appling and Durham soils. They have a redder and less plastic subsoil than Enon and Mecklenburg soils. They have a lighter red subsoil than Davidson soils. They are not so gravelly as Lockhart soils. They have a much thicker subsoil than Wedowee, Pacolet, and Wilkes soils.

Cecil fine sandy loam, 2 to 6 percent slopes, eroded (CcB2).--This soil has the profile described as representative of the series.

Included with this soil in mapping are medium-size areas of Davidson soils; areas of Cecil soils that have a gravelly sandy loam, loam, and clay loam surface layer; small areas of Wedowee, Pacolet, Lockhart, and Mecklenburg soils; small areas of soils, similar to this Cecil soil, that have common fine mica flakes throughout the profile; and a few areas on the smoother part of the ridgetops where slopes are less than 2 percent and a few places where they range from 6 to 10 percent. Inclusions make up about 40 percent of this mapping unit.

The plow layer of this Cecil soil is difficult to keep in good tilth. It can be worked within only a medium range of moisture content without clodding. It has poor tilth in galled areas, and seed germination is impeded.

Part of the acreage is used for cultivated crops and pasture, part is pine woodland, and the rest is idle. All crops common to the county are grown. Controlling erosion is the chief concern in management. Capability unit IIe-1; woodland group 3o7.

Cecil fine sandy loam, 6 to 10 percent slopes, eroded (CcC2).--This soil is on medium ridges and side slopes.

Included with this soil in mapping are medium-size areas of Davidson soils; areas of Cecil soils that have a gravelly sandy loam, loam, or clay loam surface layer; small areas of Wedowee, Pacolet, and Wilkes soils; areas of soils, similar to this Cecil soil, that have common fine mica flakes throughout the profile; and a few areas where slopes are less than 6 percent and a few where they range from 10 to 15 percent. Inclusions make up about 40 percent of this mapping unit.

The plow layer of this Cecil soil is difficult to keep in good tilth. It can be worked within only a medium range of moisture content without clodding. It has poor tilth in galled areas, and seed germination is impeded.

About half the acreage is used for cultivated crops and pasture. Part of the acreage is forest, and the rest is idle. Cotton, grain sorghum, oats, fescue, and white clover are grown. Controlling erosion is the major concern in management. Capability unit IIIe-1; woodland group 3o7.

Cecil fine sandy loam, 10 to 15 percent slopes, eroded (CcD2).--This soil is on narrow ridges and side slopes. Erosion has removed 25 to 75 percent of the original surface layer.

Included with this soil in mapping are small areas of Davidson soils; small areas of Cecil soils where the surface layer is gravelly sandy loam, loam, or clay loam; small to medium-size areas of Wedowee and Pacolet soils; small areas of soils, similar to this Cecil soil, that have common mica flakes throughout the profile; and small areas of Wilkes soils. Inclusions make up about 30 percent of this mapping unit.

Most of the acreage is mixed hardwood and pine forest. Controlling erosion is the major concern in management. Capability unit IVe-1; woodland group 3o7.

Cecil fine sandy loam, 15 to 25 percent slopes, eroded (CcE2).--This soil is on narrow ridges and side slopes.

Included with this soil in mapping are small areas of Davidson soils; small areas of Cecil soils where the surface layer is gravelly sandy loam, loam, or clay loam; small to medium-size areas of Wedowee and Pacolet soils; small areas of soils, similar to this Cecil soil, that have common mica flakes throughout the profile; and around abrupt breaks, small areas of Wilkes soils. Inclusions make up about 30 percent of this mapping unit.

This Cecil soil is not suitable for cultivation. Most of the acreage is mixed hardwood and pine forest. Controlling erosion is the major concern in management. Capability unit VIe-1; woodland group 3r8.

Cecil clay loam, 2 to 6 percent slopes, severely eroded (CeB3).--This soil is on narrow to medium-wide ridgetops and side slopes. Its profile is similar to the one described as representative of the series, but its surface layer is clay loam. Sheet erosion has removed all of the original surface layer and up to 25 percent of the subsoil. Water erosion is a severe hazard because runoff is excessive and rapid. Rills, shallow gullies, and medium to large galled areas are common.

Included with this soil in mapping are small areas of Davidson, Wedowee, Pacolet, Lockhart, and Mecklenburg soils; small areas of Cecil soils where the surface layer is fine sandy loam; and some areas where the subsoil contains many mica flakes. Inclusions make up about 40 percent of this mapping unit.

Tilth is difficult to maintain, especially in the gullied and galled areas. Poor tilth impedes seed germination, and uniform stands of crops are difficult to obtain. Clods form unless this Cecil soil is tilled within only a narrow range of moisture content.

Most of the acreage is in cultivated crops or in pasture. Cotton, grain sorghum, oats, fescue, and white clover are grown. Controlling erosion and maintaining fertility and the organic-matter content are the major concerns in management. Capability unit IIIe-1; woodland group 4c2e.

Cecil clay loam, 6 to 10 percent slopes, severely eroded (CeC3).--This soil is on breaks to drains. Its profile is similar to the profile described as representative of the series, but its surface layer is clay loam. Sheet erosion has removed most of the original surface layer. Rills, shallow gullies, and medium to large galled areas are common.

Included with this soil in mapping are medium-size areas of Davidson soils; a few small gullied areas; small areas of Cecil soils where the surface layer is fine sandy loam or loam; and small areas of Wilkes soils. Inclusions make up about 10 percent of this mapping unit.

Tilth is difficult to maintain, especially in the gullied and galled areas. Poor tilth impedes seed germination, and uniform stands of crops are difficult to obtain.

Most of the acreage is woodland and pasture. Controlling erosion and maintaining fertility and the organic-matter content are the major concerns in management. Capability unit IVe-1; woodland group 4c2e.

Cecil clay loam, 10 to 25 percent slopes, severely eroded (CeE3).--This soil is on side slopes. Except for texture of the surface layer, it has a profile similar to the profile described as representative of the series. The subsoil is exposed in all but a few small patches. Rills, shallow gullies, and large galled areas are common.

Included with this soil in mapping are medium-size areas of Davidson soils; small areas of Wilkes and Lockhart soils; small areas where the surface layer is sandy loam or sandy clay loam; and small areas where slopes are less than 10 percent and small areas where they range from 25 to 35 percent. These inclusions make up about 40 percent of this mapping unit.

Tilth is difficult to maintain. Runoff is rapid. Because the hazard of erosion is severe, it is not practical to disturb the surface layer of this Cecil soil.

Most of the acreage is forest. Controlling erosion is the major concern in management. Capability unit VIIe-1; woodland group 4c3e.

Chesterfield Series

The Chesterfield series consists of deep, well-drained soils. These soils formed in sandy marine deposits and the underlying clayey to loamy Piedmont residuum weathered from granite, gneiss, and argillite. Slopes range from 2 to 15 percent.

In a representative profile, the surface layer is about 8 inches thick. The subsoil extends to a depth of 55 inches. It is brownish-yellow sandy loam in the upper part, brownish-yellow clay loam in the middle part, and light yellowish-brown silt loam in the lower part. Below this is highly weathered rock material that crushes to silt loam. Depth to bedrock is more than 10 feet. The original vegetation was oak, gum, maple, pine, and hickory and an understory of shrubs, vines, and native grasses.

These are important soils for farming, and they respond favorably to good management. A large part of the acreage is cultivated. Infiltration is moderately rapid, and permeability is moderate. The organic-matter content is low. The available water capacity is high.

The Chesterfield soils in this county are mapped only with Appling soils.

Representative profile of Chesterfield loamy sand, in an area of Appling and Chesterfield soils, 2 to 6 percent slopes, eroded, on a dirt road 3 miles southwest of Heath Springs:

Ap--0 to 8 inches, dark grayish-brown (10YR 4/2) loamy sand; weak, fine and medium, granular structure; loose; many fine and few medium roots; few fine holes and pores; few rounded quartz pebbles 5 to 25 millimeters in size; strongly acid; clear, wavy boundary.

B1--8 to 11 inches, brownish-yellow (10YR 6/6) sandy loam; few, fine, distinct, dark grayish-brown mottles; weak, fine and medium, subangular blocky structure; friable, slightly hard; many fine roots; many fine and medium holes; few fine pores; few rounded and angular quartz pebbles, mostly in top part, 5 to 40 millimeters in size; strongly acid; clear, wavy boundary.

B2t--11 to 27 inches, brownish-yellow (10YR 6/8) clay loam; weak, medium, subangular blocky structure; friable; patchy faint clay films on peds; few fine roots; few fine pores; few krotovinas 3 to 7 millimeters in size; very strongly acid; gradual, wavy boundary.

IIB3t--27 to 55 inches, light yellowish-brown (10YR 6/4) silt loam; few, fine and medium, faint, yellowish-brown mottles and few, fine, distinct, white mottles; weak, coarse, subangular blocky structure; very friable; patchy faint clay films on some peds; very strongly acid; gradual, wavy boundary.

IIC--55 to 70 inches, light yellowish-brown (10YR 6/4), highly weathered rock material that crushes to silt loam; few, fine and coarse, distinct, yellowish-brown (10YR 5/6), white (10YR 8/2), and pink (7.5YR 7/4) mottles; structureless; loose; very strongly acid.

The Ap horizon is brown, grayish brown, dark grayish brown, or light yellowish brown and is 5 to 9 inches thick. The A2 horizon, where present, is pale-brown or yellowish-brown loamy sand or sandy loam. The A horizon ranges from 5 to 18 inches in thickness. The B1 horizon, where present, is light yellowish-brown, brownish-yellow, or yellowish-brown sandy loam, sandy clay loam, or clay loam. The B2t horizon is brownish-yellow, yellowish-brown, light yellowish-brown, or reddish-yellow clay loam to silty clay. The B3t horizon is light yellowish-brown or yellowish-brown silt loam or silty clay loam. A few round quartz pebbles are characteristic of this soil and range from few to common in the A horizon and on the surface. Reaction is strongly acid in the A horizon and very strongly acid or strongly acid in the B and C horizons.

These soils are associated with Herndon, Georgeville, Durham, Wagram, and Blanton soils. They have a sandier surface layer than Herndon or Georgeville soils. They have more silt in the subsoil than Durham, Wagram, or Blanton soils, and their surface layer is not so thick as that of Wagram or Blanton soils.

Chewacla Series

The Chewacla series consists of deep, somewhat poorly drained, nearly level soils on bottom land and in depressions. These soils formed in alluvium. They are subject to frequent flooding.

In a representative profile, the surface layer is dark-brown silt loam about 6 inches thick. The subsoil extends to a depth of 72 inches. It is dark yellowish-brown silt loam in the upper part, dark grayish-brown silty clay loam in the middle part, and grayish-brown silty clay loam mottled with yellowish brown in the lower part. Depth to bedrock is greater than 15 feet.

Chewacla soils are moderately permeable, moderate in organic-matter content, and high in available water capacity. The infiltration rate is moderate. The water table is within a depth of 25 inches during winter and spring. If well managed, these soils are suitable for cultivation.

Representative profile of a Chewacla silt loam in a cultivated area of Chewacla soils, 2 miles west of Van Wyck near the old ferry site on Catawba River:

Ap--0 to 6 inches, dark-brown (10YR 4/3) silt loam; weak, medium and coarse, granular structure; very friable; loose; many fine and medium roots; few fine holes and pores; common fine mica flakes; medium acid; clear, wavy boundary.

B1--6 to 20 inches, dark yellowish-brown (10YR 4/4) silt loam; weak, fine, subangular blocky structure; very friable; many fine roots; few fine holes and pores; many fine mica flakes; medium acid; clear, wavy boundary.

B2--20 to 27 inches, dark grayish-brown (2.5Y 4/2) silty clay loam; weak, coarse, subangular blocky structure; friable; few fine roots; few fine and medium holes and pores; few fine mica flakes; strongly acid; clear, wavy boundary.

B3g--27 to 72 inches, grayish-brown (2.5Y 5/2) silty clay loam; many, fine, distinct, yellowish-brown mottles; structureless; very friable, slightly sticky, slightly plastic; few fine mica flakes; strongly acid.

The A horizon is fine sandy loam, silt loam, or loam 5 to 10 inches thick. It ranges from very pale brown to dark brown and grayish brown. The B horizon ranges from dark yellowish brown to yellowish brown and dark brown in the upper part and grayish brown to gray in the lower part. Gray mottles are within a depth of 20 inches. The lower part of the B horizon is stratified with streaks of sand, silt, and silty clay. Depth to the water table ranges from about 20 to 40 inches. Reaction is medium acid in the A horizon and strongly acid or medium acid in the B horizon.

Chewacla soils are associated with Congaree and Wehadkee soils. They are more poorly drained and have a grayer subsoil than Congaree soils. They are better drained and have a less gray subsoil than Wehadkee soils.

Chewacla soils (Ch).--These soils are on flood plains of the larger creeks and rivers. Most areas are 200 to 500 feet wide and commonly a mile or more long. Runoff is slow. Water ponds in places for short periods following a heavy rain.

Included with these soils in mapping are many small areas of Wehadkee soils, small areas of Congaree soils, and small areas that are sandy to a depth of about 60 inches. Inclusions make up about 30 percent of this mapping unit.

If these Chewacla soils are adequately drained, corn, grain sorghum, and soybeans can be grown. Tall fescue and white clover are grown for pasture.

The plow layer can be worked within a medium range of moisture content without clodding. In most areas, open ditches are needed for drainage and for lowering the water table. These soils are subject to flooding every year. Severe flood damage can be expected 1 year in 3 unless the soils are protected. Capability unit IIIw-2; woodland group 1w8.

Colfax Series

The Colfax series consists of deep, somewhat poorly drained soils on the Piedmont Uplands around the heads of intermittent drainageways. These soils formed in residuum from acid crystalline rocks, such as granite and gneiss. Slopes range from 2 to 6 percent.

In a representative profile, the surface layer is dark grayish-brown fine sandy loam 6 inches thick. The subsurface layer is grayish-brown loamy sand about 3 inches thick. The upper 11 inches of the subsoil is light yellowish-brown sandy clay loam. The next 16 inches is gray sandy clay loam. The lower 19 inches of the subsoil is a brittle sandy loam fragipan. Depth to bedrock is more than 5 feet.

Colfax soils have slow permeability, rapid infiltration, and medium available water capacity. The organic-matter content is low. Most of the acreage is used for pasture and woodland.

Representative profile of Colfax fine sandy loam, 2 to 6 percent slopes, in an idle field north of County Road No. 216 between County Roads Nos. 166 and 34, about 7 miles southwest of Lancaster:

Ap--0 to 6 inches, dark grayish-brown (2.5Y 4/2) fine sandy loam; weak, fine, granular structure; loose; many fine roots; many fine holes; few fine pores; few quartz pebbles 5 to 25 millimeters in size; medium acid; clear, wavy boundary.

A2--6 to 9 inches, grayish-brown (2.5Y 5/2) loamy sand; weak, fine, granular structure; loose; many fine roots; few fine holes and pores; few quartz pebbles 5 to 20 millimeters in size; medium acid; clear, wavy boundary.

B21t--9 to 20 inches, light yellowish-brown (2.5Y 6/4) sandy clay loam; few, fine, faint, pale-brown and light brownish-gray mottles; weak, fine and medium, subangular blocky structure; friable; few fine roots; few fine holes and pores; sand grains coated and bridged with clay; pebbles 5 to 20 millimeters in size; strongly acid; gradual, wavy boundary.

B22g--20 to 36 inches, gray (5Y 6/1) sandy clay loam; common, fine and medium, distinct, brownish-

yellow (10YR 6/6) mottles; moderate, medium, subangular blocky structure; firm, slightly sticky, slightly plastic, slightly hard and brittle; few, patchy, faint clay films; few fine roots; few fine holes and pores; strongly acid; diffuse, wavy boundary.

Bx--36 to 55 inches, light-gray (10YR 7/1) sandy loam; common, fine and medium, distinct, yellowish-brown mottles; structureless; extremely compact in place; hard and brittle; very strongly acid.

The Ap horizon is gray, pale brown, or dark grayish brown and is 6 to 10 inches thick. An A2 horizon of grayish-brown or pale-brown loamy sand 2 to 9 inches thick is common. The Bt horizon is sandy clay loam or clay loam. It is light yellowish brown, brown, or pale brown in the upper part and is gray or has gray mottles within the lower 10 inches. The Bx horizon is sandy loam or sandy clay loam. It is dominantly gray or light gray and has mottles of yellow, brownish yellow, yellowish brown, and pale brown. The B horizon ranges from 30 to 55 inches in thickness. Reaction is strongly acid in the A horizon and strongly or very strongly acid in the Bt and Bx horizons.

Colfax soils occur with Helena, Appling, Durham, and Worsham soils. They differ from all of those soils in having a fragipan. In addition, they are lower lying and are not so well drained as Appling and Durham soils. They are at higher elevations and are better drained than Worsham soils. They are less plastic and more poorly drained than Helena soils.

Colfax fine sandy loam, 2 to 6 percent slopes (ClB).--This soil is at the heads of small drainageways and on low divides. It is subject to erosion. In some places there are loamy deposits eroded from the surrounding soils. In some places there are a few shallow gullies caused by rapid runoff from the adjoining hillsides.

Included with this soil in mapping are small areas where the surface layer is silt loam, loamy sand, loamy fine sand, or sandy loam; small areas of Appling, Durham, Worsham, and Helena soils; and areas of a soil that is similar to this soil but does not have a fragipan. Inclusions make up about 30 percent of this mapping unit.

The plow layer of this Colfax soil is easy to keep in good tilth. Seed germination is impeded early in spring because this soil is wet. Slight ponding is likely to occur after a heavy rain.

Most of the acreage is pasture and hardwood forest. Tall fescue, white clover, and other pasture grasses, corn, grain sorghum, soybeans, and oats are grown. Controlling surface and subsurface water is the major concern in management. Capability unit IIIw-3; woodland group 3w8.

Congaree Series

The Congaree series consists of deep, nearly level, well-drained soils that formed in local alluvium. These soils are subject to occasional overwash by surface runoff from adjacent areas.

In a representative profile, the surface layer is light yellowish-brown fine sandy loam about 6 inches thick. Below this is stratified, brown fine sandy loam and yellowish-brown and brown silt loam. Between the depths of 30 and 42 inches is yellowish-brown silty clay loam that has common fine mica flakes. Depth to bedrock is more than 15 feet.

Under good management, Congaree soils are suitable for cultivation. Infiltration and permeability are moderate. The available water capacity is medium. The organic-matter content is moderate.

Representative profile of Congaree fine sandy loam in an area of Congaree soils in a slight depression 200 yards west of Six Mile Church on County Road No. 55:

Ap--0 to 6 inches, light yellowish-brown (10YR 6/4) fine sandy loam; weak, fine, granular structure; very friable; many fine roots; few fine mica flakes; slightly acid; gradual, wavy boundary.

C1--6 to 18 inches, brown (10YR 5/3) fine sandy loam; weak, fine, granular structure; very friable; few fine roots; few fine mica flakes; slightly acid; pH 6.3; clear, wavy boundary.

C2--18 to 24 inches, brown (10YR 5/3) silt loam; weak, fine, granular structure; very friable; common fine mica flakes; medium acid; clear, wavy boundary.

C3--24 to 30 inches, yellowish-brown (10YR 5/4) silt loam; weak, fine, granular structure; very friable; common fine mica flakes; medium acid; clear, smooth boundary.

IIBb--30 to 42 inches, yellowish-brown (10YR 5/6) silty clay loam; weak, fine, subangular blocky structure; friable; common fine mica flakes; strongly acid.

The A horizon is light yellowish-brown, dark-brown or light brownish-gray loam, silt loam, or fine sandy loam 5 to 9 inches thick. The C1 and C2 horizons are brown or dark yellowish-brown fine sandy loam, loam, or silt loam. The C3 and lower horizons are silt loam, fine sandy loam, or silty clay loam. Between the depths of 36 and 50 inches, few to common gray mottles can occur. The C horizon is thinly stratified with coarse sand, silt, and clay. Reaction is slightly acid to medium acid in the A horizon and medium acid or strongly acid in the C horizon.

Though not extensive, Congaree soils are important soils in the county. They are associated with most uplands soils, such as Mecklenburg, Appling, Cecil, and Davidson soils. They have a more weakly developed subsoil than those soils.

Congaree soils (Co).--These soils are nearly level and are around the heads of drains and in depressions and small drainageways. Typically the

loam and overlies stratified, brownish fine sandy loam to silty clay loam. In many areas the 6-inch surface layer is loam or silt loam.

These soils formed at the foot of slopes, in association with Cecil, Appling, Davidson, Mecklenburg, and other upland soils, and they are subject to overwash during heavy rain. Generally, water does not stand on these soils for more than a few hours. Erosion is a slight hazard.

Corn, grain sorghum, oats, soybeans, and truck crops are grown. Tall fescue and white clover are the main pasture plants. Capability unit IIw-2; woodland group 1o7.

Davidson Series

The Davidson series consists of deep, well-drained soils that formed in residuum from the weathering of dark-colored basic rocks, such as gabbro, diorite, hornblende schist, and hornblende gneiss. Slopes range from 2 to 15 percent.

In a representative profile, the surface layer is dusky red clay loam about 6 inches thick. The subsoil extends to a depth of 60 inches. It is dusky red clay loam in the upper part, dark-red clay in the middle part, and dark-red clay loam in the lower part. Depth to bedrock is more than 15 feet.

Davidson soils are suitable for cultivation and respond to good management. They have moderate permeability, moderately slow infiltration, and medium available water capacity. They are low in organic-matter content.

Representative profile of Davidson clay loam, 2 to 6 percent slopes, eroded, 0.8 mile west of County Road No. 29 and 0.4 mile north of South Carolina Highway No. 9:

Ap--0 to 6 inches, dusky red (2.5YR 3/2) clay loam; strong, medium, granular structure; friable, slightly sticky; many fine roots; few fine holes or pores; few manganese concretions; few quartz fragments; medium acid; gradual, wavy boundary.

B21t--6 to 15 inches, dusky red (2.5YR 3/2) clay loam; moderate, medium, subangular blocky structure; hard, firm, sticky and plastic; common fine root holes or pores; many black concretions; slightly acid; gradual, wavy boundary.

B22t--15 to 48 inches, dark-red (2.5YR 3/6) clay; moderate, medium, subangular blocky structure; hard, firm, sticky; few root holes in upper part; few concretions; medium acid; gradual, wavy boundary.

B3t--48 to 60 inches, dark-red (2.5YR 3/6) clay loam; weak, coarse, subangular blocky structure; friable, slightly sticky, few concretions; few basic rock fragments; strongly acid.

The Ap horizon is dusky red to dark reddish brown and is 3 to 8 inches thick. The Bt horizon is dark-red or dusky red clay or clay loam that ranges from 54 to more than 72 inches in thickness. The soil ranges from strongly acid to slightly acid throughout the profile.

Davidson soils occur with Cecil, Mecklenburg, Pacolet, Iredell, and Wilkes soils. They have a darker red subsoil than the associated soils. They have a thicker subsoil than Wilkes or Pacolet soils and a less plastic subsoil than Iredell soils.

Davidson clay loam, 2 to 6 percent slopes, eroded (DaB2).--This soil is on medium ridgetops. It has the profile described as representative of the series. There are a few rills and galled areas.

Included with this soil in mapping are areas where the subsoil is exposed at the surface; areas of a few shallow gullies; small areas where the surface layer is loam or fine sandy loam; a few small areas of Mecklenburg and Cecil soils; a few small areas where slopes range from 6 to 10 percent; and a few areas near the larger streams where water-rounded pebbles are on the surface and throughout the profile. Inclusions make up about 10 percent of this mapping unit.

This Davidson soil can be tilled within only a narrow range of moisture content. Tilth is difficult to maintain. Poor tilth impedes seed germination, and uniform stands of crops are difficult to obtain.

Most of the acreage is pasture and hardwood forest (pl. I, bottom left). All crops common to the county are grown. Controlling erosion is the major concern in management. Capability unit IIe-1; woodland group 3o7.

Davidson clay loam, 6 to 10 percent slopes, eroded (DaC2).--This soil is on medium-wide ridgetops and side slopes.

Included with this soil in mapping are small and medium patches where the subsoil is exposed; small areas of Cecil and Mecklenburg soils; a few small areas where slopes are 2 to 6 percent; and a few areas of a Davidson soil where the surface layer is fine sandy loam to loam and water-rounded pebbles occur throughout the profile. Inclusions make up about 10 percent of this mapping unit.

This Davidson soil is difficult to keep in good tilth. It can be tilled within only a narrow range of moisture content. Poor tilth impedes seed germination, and uniform stands of crops are difficult to obtain.

Most of the acreage is hardwood forest and pasture. Cotton, grain sorghum, oats, tall fescue, and white clover are grown. Controlling erosion is the major concern in management. Capability unit IIIe-1; woodland group 3o7.

Davidson clay loam, 10 to 15 percent slopes, eroded (DaD2).--This soil is on medium-wide to narrow ridgetops and side slopes.

Included with this soil in mapping are a few small areas where the subsoil is exposed; a few rills, galled areas, and shallow gullies; and small areas of Mecklenburg and Cecil soils. Inclusions make up about 15 percent of this mapping unit.

Most of the acreage is forest and pasture. Controlling erosion is the major concern in management. Capability unit IVe-1; woodland group 3o7.

Durham Series

The Durham series consists of deep, well-drained soils of the Piedmont Uplands. These soils formed in residuum from acid crystalline rock, such as granite or gneiss. Slopes range from 2 to 10 percent.

In a representative profile, the surface layer is grayish-brown loamy sand 6 inches thick. The subsurface layer is light brownish-gray loamy fine sand 4 inches thick. The subsoil is 32 inches thick. It is light yellowish-brown sandy loam in the upper part, yellowish-brown sandy clay loam in the middle part, and yellow sandy loam in the lower part. Below this is coarsely mottled, weathered rock material that crushes to sandy loam. Depth to bedrock is 8 to 30 feet.

Durham soils are not extensive, but they are suitable for cultivation and respond well to management. They have rapid infiltration, moderate permeability, and high available water capacity. They are low in organic-matter content.

Representative profile of Durham loamy sand, 2 to 6 percent slopes, in a cultivated field 6 miles southwest of Lancaster along County Road No. 179:

Ap--0 to 6 inches, grayish-brown (2.5Y 5/2) loamy sand; weak, fine, granular structure; loose; many fine roots; few quartz pebbles up to 2 inches in size; strongly acid; gradual, wavy boundary.

A2--6 to 10 inches, light brownish-gray (2.5Y 6/2) loamy fine sand; weak, medium, granular structure; very friable, slightly hard; common fine roots; few quartz pebbles up to 2 inches in size; strongly acid; clear, wavy boundary.

B21t--10 to 21 inches, light yellowish-brown (10YR 6/4) sandy loam; weak, medium, subangular blocky structure; friable; few, patchy, faint clay films; few fine root holes filled with gray sandy material; few fine quartz pebbles; strongly acid; diffuse, wavy boundary.

B22t--21 to 33 inches, yellowish-brown (10YR 5/6) sandy clay loam; few, medium, reddish-yellow mottles; moderate, medium, subangular blocky structure; friable; few, patchy, faint clay films; few fine roots along ped faces; few fine quartz pebbles; strongly acid; gradual, wavy boundary.

B3--33 to 42 inches, yellow (10YR 7/6) sandy loam; common, coarse, faint, yellowish-brown (10YR 5/6) mottles, common, medium, distinct, white mottles and few, fine, faint, gray mottles; weak, coarse, subangular blocky structure; friable; strongly acid; gradual, wavy boundary.

C--42 to 52 inches, yellow (10YR 7/6), weathered rock material that crushes to a sandy loam; many, coarse, faint, yellowish-brown (10YR 5/6) mottles and common, medium, distinct, gray mottles; structureless; friable; strongly acid; diffuse boundary grading into material having more rocklike structure.

The A1 or Ap horizon ranges from dark gray to grayish brown, and the A2 from light gray or light brownish gray to pale brown. The B horizon is strong-brown, light yellowish-brown, or yellowish-brown sandy loam, sandy clay loam, or clay loam. Gray or white mottles in the lower part of the B horizon are attributed to weathered parent material rather than wetness. The C horizon is weathered granite, gneiss, or schist commonly mottled with red, brown, yellow, and gray. Reaction is strongly acid throughout.

Durham soils occur with Appling, Wedowee, Wagram, Colfax, Helena, and Worsham soils. They are yellower than Appling and Wedowee soils and are better drained than Colfax, Helena, and Worsham soils. They have a thinner surface layer than Wagram soils.

Durham loamy sand, 2 to 6 percent slopes (DvB).--This soil is on broad ridges and side slopes. It has the profile described as representative of the series.

Inclusions of Helena soils make up about 5 percent of this mapping unit. Also included are a few small areas where slopes are less than 2 percent and a few where they range from 6 to 10 percent; small areas where the surface layer is sandy loam; small areas of Appling, Herndon, Wagram, and Colfax soils; and a few very small areas of Worsham soils. Total inclusions make up about 20 percent of this mapping unit.

Tilth is easy to maintain in this Durham soil, and the root zone is deep. Most of the acreage is cultivated. All crops common to the county are grown. Controlling erosion and maintaining the organic-matter content are concerns in management. Capability unit IIe-2; woodland group 3o7.

Durham loamy sand, 2 to 6 percent slopes, eroded (DvB2).--This soil is on broad ridges and side slopes. It has a few small rills and some small galled areas.

Included with this soil in mapping are small areas where slopes are less than 2 percent and a few where they range from 6 to 10 percent; small areas where the surface layer is sandy loam; and areas of Appling, Herndon, Helena, Colfax, and Worsham soils. Inclusions make up about 20 percent of this mapping unit.

Tilth is easy to maintain in this Durham soil, and the root zone is deep. Most of the acreage is cultivated. All crops common to the county are grown. Controlling erosion and maintaining the organic-matter content are concerns in management. Capability unit IIe-2; woodland group 3o7.

Durham loamy sand, 6 to 10 percent slopes, eroded (DvC2).--This soil is on broad side slopes. It has a few small rills, some small galled areas on the more abrupt slopes, and in some areas, boulders and rock outcrop.

Included with this soil in mapping are small areas of similar soils where slopes are less than 6 percent and small areas where they range from 10 to 15 percent; small areas where the surface layer is sandy loam; areas of the steep Vaucluse soils, which are associated with the Coastal Plains soils of the county; and small areas of Appling, Helena, Herndon,

and Wagram soils. Inclusions make up about 20 percent of this mapping unit.

This Durham soil is used intensively for cotton, corn, grain sorghum, oats, and small grain. It is easy to keep in good tilth, and it has a deep root zone. Fescue and white clover are grown for pasture. Part of the acreage is pine woodland. Capability unit IIIe-2; woodland group 3o7.

Enon Series

The Enon series consists of well-drained soils that are moderately deep over weathered rock material of the Piedmont Uplands. These soils formed in residuum from the weathering of acid crystalline rock and basic rock intrusions, such as granite and gneiss intruded by diorite or gabbro. Slopes range from 2 to 25 percent.

In a representative profile, the surface layer is dark-brown loam about 4 inches thick. The subsoil is about 20 inches thick. The upper part is strong-brown plastic clay mottled with brown. The lower part of the subsoil is yellowish-brown, plastic clay mottled with light yellowish brown and pale brown. Below this is a pale-brown and light brownish-gray fine sandy loam. Depth to bedrock is 3 to 5 feet.

Enon soils have slow permeability. Infiltration is moderate where the surface layer is loam and slow where it is clay loam. Available water capacity is medium and the organic-matter content is low. Most of the acreage is used for woodland and pasture.

Representative profile of Enon loam, 2 to 6 percent slopes, eroded, 0.5 mile west of U.S. Highway No. 521 and 0.5 mile northwest of Camp Creek, about 3 miles north of Lancaster:

Ap--0 to 4 inches, dark-brown (10YR 4/3) loam; weak, medium, granular structure; very friable, slightly hard; many fine roots; many fine and medium holes; few fine pores; few quartz pebbles 5 to 20 millimeters in size; medium acid; abrupt, wavy boundary.

B21--4 to 12 inches, strong-brown (7.5YR 5/6) clay; common, fine, distinct, brown mottles; moderate, medium and coarse, subangular blocky structure; very firm, sticky, plastic, very hard; patchy distinct clay films; few fine roots; few fine holes and pores; few krotovinas; few quartz pebbles 5 to 20 millimeters in size and very few up to 3 inches in size; medium acid; clear, wavy boundary.

B22t--12 to 24 inches, yellowish-brown (10YR 5/6) clay; common, fine and medium, distinct, light yellowish-brown mottles and few, fine, distinct, pale-brown mottles; weak, coarse, subangular blocky structure; very firm, plastic, sticky, hard; patchy distinct clay films; few fine roots; few fine pores; few quartz pebbles 5 to 10 millimeters in size; strongly acid; gradual, wavy boundary.

C--24 to 35 inches, pale-brown (10YR 6/3) and light brownish-gray (10YR 6/2), weathered gneiss or schist rock breaking to fine sandy loam; very compact in place, but loose when disturbed; neutral.

The Ap horizon is dark brown, dark yellowish brown, and grayish brown to yellowish brown and ranges from 3 to 8 inches in thickness; it is loam or clay loam. The Bt horizon is strong brown, reddish yellow, brown, dark brown, or dark yellowish brown. It ranges from 10 to 30 inches in thickness and is firm to very firm. The C horizon is fine sandy loam, sandy clay loam, or silty clay loam and contains many partially weathered rock fragments. Reaction is medium acid in the A horizon, strongly acid to medium acid in the B horizon, and neutral in the C horizon.

Enon soils occur with Cecil, Davidson, Gills, Mecklenburg, Iredell, Pickens, Goldston, and Wilkes soils. They are browner than Cecil, Davidson, and Mecklenburg soils. They differ from Gills soils in not having a fragipan. They have a less plastic subsoil than Iredell soils. They have a thicker subsoil than Wilkes soils. They have fewer coarse fragments throughout the profile than Pickens and Goldston soils.

Enon loam, 2 to 6 percent slopes, eroded (EnB2).--This soil is on broad side slopes. It has the profile described as representative of the series. Rills and medium-size galled areas are common.

Included with this soil in mapping are areas of similar soils where the surface layer is fine sandy loam, silt loam, or silty clay loam; small areas where slopes range from 6 to 10 percent; and small areas of Iredell soils. Inclusions make up about 10 percent of this mapping unit.

Tilth and infiltration of the plow layer are favorable for seed germination, and uniform stands of crops are easy to obtain.

Most of the acreage is cultivated. Most crops common to the county are grown. Controlling erosion is the major concern in management. Capability unit IIe-3; woodland group 4o1.

Enon loam, 6 to 10 percent slopes, eroded (EnC2).--This soil is on medium-wide to narrow side slopes. Rills, shallow gullies, and medium-size galled areas are common.

Included with this soil in mapping are areas of similar soils where the surface layer is fine sandy loam, silt loam, or silty clay loam; small areas where slopes are less than 6 percent and other small areas where they range from 10 to 15 percent; and small areas of Mecklenburg, Herndon, Appling, Wilkes, Pickens, and Goldston soils. Inclusions make up about 15 percent of this mapping unit.

Tilth is difficult to maintain in the gullied and galled areas, and only slightly less difficult in the eroded areas. Seed germination in the galled and gullied areas is impeded, and stands of crops are difficult to obtain.

Most of the acreage is cleared and used for pasture. A few areas are wooded. Cotton, grain sorghum, oats, tall fescue, and white clover are the main crops. Controlling erosion is the major

concern in management. Capability unit IIIe-3; woodland group 4o1.

Enon loam, 10 to 25 percent slopes, eroded (EnE2).--This soil is on breaks at the heads of and along small streams and drainageways.

Included with this soil in mapping are areas of similar soils where the surface layer is silt loam, fine sandy loam, or clay loam; and small areas of Wilkes, Pickens, and Goldston soils. Inclusions make up 15 percent of this mapping unit.

Most of the acreage is pine forest. Some pasture plants are grown. Controlling erosion is the major concern in management. Capability unit VIe-3; woodland group 4r2.

Enon clay loam, 2 to 6 percent slopes, severely eroded (EoB3).--This soil is on medium-wide ridges. Its profile is similar to the profile described as representative of the series, but its surface layer is clay loam. Rills, large eroded areas, and medium-size gullies are common.

Included with this soil in mapping are some medium-size areas of similar soils where the surface layer is loam, silt loam, or fine sandy loam; small areas of Cecil, Mecklenburg, Georgeville, Davidson, Herndon, Appling, and Iredell soils; and small areas where slopes range from 6 to 10 percent. Inclusions make up less than 20 percent of this mapping unit.

Tilth is difficult to maintain. Stands of crops are difficult to obtain except in ideal seasons.

Most of the acreage is forest and pasture. Cotton, grain sorghum, oats, tall fescue, and white clover are grown. Controlling erosion is the major concern in management. Capability unit IIIe-3; woodland group 4c2e.

Enon clay loam, 6 to 15 percent slopes, severely eroded (EoD3).--This soil is on narrow ridges and abrupt breaks. Its profile is similar to the profile described as representative of the series, but its surface layer is clay loam. Large areas are eroded. About 10 percent of the acreage is cut by shallow gullies.

Included with this soil in mapping are small areas where the surface layer is silt loam or fine sandy loam; small areas where slopes are less than 6 percent and a few where they are more than 15 percent; and small areas of Iredell, Wilkes, Pickens, Goldston, Davidson, Herndon, and Appling soils. Inclusions make up about 12 percent of this mapping unit.

Tilth is difficult to maintain. Stands of crops are difficult to obtain except where the moisture content is ideal.

Most of the acreage is hardwood forest and pasture. Controlling erosion is the major concern in management. Capability unit VIe-3; woodland group 4c2e.

Eustis Series

The Eustis series consists of deep, somewhat excessively drained soils. These soils formed in sandy sediment of the middle and upper Coastal Plain. They are level to nearly level and are on ridges and side slopes. Slopes range from 0 to 15 percent.

In a representative profile, the surface layer is dark-brown loamy sand about 8 inches thick. The subsoil is loamy sand 65 inches thick. It is dark brown in the upper part, yellowish red in the middle part, and red in the lower part. Depth to bedrock is more than 10 feet.

Eustis soils are droughty. They are easy to cultivate, and if fertilized and irrigated, they are suited to most crops commonly grown. Infiltration and permeability are rapid. The organic-matter content and available water capacity are low. Most of the acreage is wooded.

Representative profile of Eustis loamy sand, 0 to 6 percent slopes, in a wooded area 1 mile south of South Carolina Highway No. 265 and 0.3 mile southwest of Lynches River, 20 miles southeast of Lancaster:

Ap--0 to 8 inches, dark-brown (10YR 4/3) loamy sand; weak, fine, granular structure; loose; abundant fine roots; medium acid; gradual, wavy boundary.

B21t--8 to 28 inches, dark-brown (7.5YR 4/4) loamy sand; weak, fine, granular structure; loose; few fine roots; medium acid; gradual, diffuse boundary.

B22t--28 to 50 inches, yellowish-red (5YR 4/8) loamy sand; weak, fine, granular structure; loose; sand grains coated with oxides and clay; few fine roots; few clay bridges between sand grains; strongly acid; diffuse boundary.

B23t--50 to 73 inches, red (2.5YR 4/6) loamy sand; structureless; loose; sand grains coated with oxides and clay; strongly acid.

The Ap horizon is dark brown, dark grayish brown, or dark yellowish brown and is 5 to 10 inches thick. The Bt horizon is dark brown or yellowish brown in the upper part and yellowish red, red, or reddish yellow in the middle and lower parts. It ranges from 20 to more than 60 inches in thickness. In some places, at lower depths, it contains thin bands of sandy loam or sandy clay loam and is mottled with brown, yellowish red, and gray. In other areas, at this depth, it grades to sand or coarse sand. Reaction is medium acid in the A horizon and strongly acid or medium acid in the Bt horizon.

Eustis soils occur with Wagram, Blaney, Blanton, and Vaucluse soils. They have a sandier subsoil than Wagram, Blaney, and Vaucluse soils. They do not have the sand subsurface layer that is typical of Blanton soils.

Eustis loamy sand, 0 to 6 percent slopes (EuB).--This soil is on broad ridges and side slopes. It has the profile described as representative of the series.

About 3 percent of the acreage of this soil is an included sand that extends to a depth of more than 72 inches. Also included are a few areas of similar soils that have a sand surface layer; small

areas of Blaney, Vaucluse, and Wagram soils; and a very few small areas where about 5 percent of the soil material within a depth of 65 inches is sesquioxide nodules. Total inclusions make up about 12 percent of this mapping unit.

The plow layer of this Eustis soil is easy to keep in good tilth and can be worked throughout a wide range of moisture content without clodding.

Most of the acreage has been cultivated. Now, part of the acreage is in pines, and part is in pasture. Melons, cotton, corn, oats, soybeans, and Coastal bermudagrass are grown. The low organic-matter content and droughtiness are the major concerns in management. Capability unit IVs-1; woodland group 3s2.

Eustis loamy sand, 6 to 15 percent slopes (EuD).--This soil is on medium-wide side slopes.

Included with this soil in mapping are small areas where the surface layer is sand; small areas of Blaney and Vaucluse soils on breaks; a few small areas of Wagram soils; and areas of a soil, similar to this soil, that is sand to a depth of more than 72 inches. Inclusions make up about 15 percent of this mapping unit.

The plow layer of this Eustis soil is easy to keep in good tilth and can be worked throughout a wide range of moisture content without clodding.

Most of the acreage has been cultivated, but is now mostly forest and pasture. The low organic-matter content and the droughtiness are the major concerns in management. Capability unit VIs-1; woodland group 3s2.

Georgeville Series

The Georgeville series consists of deep, well-drained soils on uplands. These soils formed in residuum from the weathering of argillite and sericitic schist. They are on broad to fairly narrow ridges and side slopes. Slopes range from 2 to 10 percent.

In a representative profile, the surface layer is yellowish-brown silt loam about 4 inches thick. The subsoil is about 46 inches thick. It is yellowish-red, friable silt loam in the upper part; red, firm silty clay in the middle part; and red silt loam in the lower part. Depth to bedrock is 4 to 15 feet.

These soils are suitable for cultivation and respond to good management. Permeability is moderate. Infiltration is moderate where the surface layer is silt loam and slow where it is silty clay loam. Available water capacity is high. The organic-matter content is low.

Representative profile of Georgeville silt loam, 2 to 6 percent slopes, eroded, along County Road No. 28, about 1.3 miles east of South Carolina Highway No. 200, 6 miles northeast of Lancaster:

O1--1 inch to 0, leaves and partially decayed hardwood forest litter and a few pine needles.

A--0 to 4 inches, yellowish-brown (10YR 5/4) silt loam; weak, fine, granular structure; very friable; many fine and medium roots; many fine and medium pores; common quartz pebbles 5 to 50 millimeters in size; very strongly acid; clear, wavy boundary.

B1t--4 to 7 inches, yellowish-red (5YR 5/8) silt loam; weak, medium, subangular blocky structure; friable; many fine and medium roots; many fine and medium pores; few quartz pebbles 5 to 15 millimeters in size; very strongly acid; clear, wavy boundary.

B2t--7 to 31 inches, red (2.5YR 4/8) silty clay; moderate, medium, subangular blocky structure; firm; complete distinct clay films on peds; few medium roots; abundant fine pores; few 5- to 25-millimeter pebbles; strongly acid; gradual, wavy boundary.

B3t--31 to 50 inches, red (2.5YR 4/8) silt loam; common, fine, prominent, reddish-yellow mottles; weak, medium, subangular blocky structure; friable; few, patchy, faint clay films on peds; few fine roots; few fine pores; common rock fragments; strongly acid; gradual, wavy boundary.

C--50 to 63 inches, red (2.5YR 4/8), weathered rock material that crushes to silt loam; many, medium, prominent, reddish-yellow mottles; platy structure; very friable; strongly acid.

The A horizon is grayish-brown, dark-brown, yellowish-brown, yellowish-red, or red silt loam or silty clay loam 3 to 7 inches thick. The B1t horizon is yellowish-red or red silt loam or silty clay loam 2 to 4 inches thick. The B2t horizon is friable to firm silty clay to clay. It is light red to red. The B3t horizon is yellowish-red to red, very friable to firm silt loam or clay. The C horizon material ranges from sericitic schist to argillite and crushes to silt loam or silty clay loam texture. On the surface in most areas are angular quartz pebbles and few to common small rocks. Reaction is very strongly acid to medium acid throughout the profile.

Georgeville soils occur with Herndon, Nason, Gills, Tatum, Pickens, and Goldston soils. They have a redder subsoil than Herndon soils. They have a thicker subsoil than Tatum, Nason, Pickens, and Goldston soils. They do not have a fragipan, which is typical of the Gills soils.

Georgeville silt loam, 2 to 6 percent slopes, eroded (GeB2).--This soil is on medium-wide ridges and side slopes. It has the profile described as representative of the series. Rills and medium-size galled areas are common.

Included with this soil in mapping are small areas where the surface layer is fine sandy loam, silty clay loam, or sandy loam; small areas of Herndon, Davidson, Tatum, Mecklenburg, and Enon soils; and a few areas on ridgetops where slopes are less than 2 percent and small areas where they are 6 to 10 percent. Inclusions make up less than 15 percent of this mapping unit.

Tilth and infiltration of the plow layer are favorable for seed germination, and uniform stands

of crops are easy to obtain. Cultivation is restricted to a narrow to medium range of moisture content to avoid clodding. Seed germination is impeded in galled areas. The plow layer has poor tilth in areas where the subsoil is exposed.

Most of the acreage is used for cultivated crops, pasture, and pine woodland. All crops common to the county are grown. Controlling erosion is the major concern in management. Capability unit IIe-1; woodland group 3o7.

Georgeville silt loam, 6 to 10 percent slopes, eroded (GeC2).--This soil is on medium-wide to narrow ridges and side slopes. Rills, a few shallow gullies, and medium-size galled areas are common.

Included with this soil in mapping are small areas of similar soils where the surface layer is fine sandy loam, silty clay loam, or sandy loam; and small areas of Davidson, Tatum, Mecklenburg, Enon, Pickens, and Goldston soils. Inclusions make up about 15 percent of this mapping unit.

Tilth and infiltration of the plow layer are favorable for seed germination, and uniform stands of crops are easy to obtain. Tillage is restricted to a narrow to medium range of moisture content to avoid clodding. Seed germination is impeded in galled areas.

Most of the acreage is used for cultivated crops and pasture. Cotton, grain sorghum, oats, tall fescue, and white clover are grown. Controlling erosion is the major concern in management. Capability unit IIIe-1; woodland group 3o7.

Georgeville silty clay loam, 2 to 6 percent slopes, severely eroded (GgB3).--This soil is on medium-wide to narrow side slopes. Its profile is similar to the one described as representative of the series, but its surface layer is silty clay loam. Accelerated sheet erosion has removed the original surface layer. Water erosion is a severe hazard because runoff is excessive and rapid. Rills, shallow gullies, and medium-size to large galled areas are common.

Included with this soil in mapping are small areas where slopes are more than 6 percent; small areas associated with the Sandhills region where the surface layer is sandy loam and medium-size areas where it is silt loam; and small areas of Davidson, Tatum, and Herndon soils. Inclusions make up about 18 percent of this mapping unit.

Tilth is difficult to maintain, especially in gullied and galled areas. Poor tilth impedes seed germination, and uniform stands of crops are difficult to obtain. Tillage is restricted to a very narrow range of moisture content to avoid clodding.

A large acreage is pasture and forest. Cotton, grain sorghum, oats, tall fescue, and white clover are grown. Large amounts of fertilizer are required. Protecting this soil from further erosion and maintaining fertility and the organic-matter content are the major concerns in management. Capability unit IIIe-1; woodland group 4c2e.

Georgeville silty clay loam, 6 to 10 percent slopes, severely eroded (GgC3).--This soil is on narrow ridges and breaks. Its profile is similar to the one described as representative of the series, but its surface layer is silty clay loam. Accelerated sheet erosion has removed the original surface layer. Water erosion is a severe hazard because runoff is excessive and rapid. Rills, shallow gullies, and medium to large galled areas are common.

Included with this soil in mapping are small areas of Tatum soils; and small areas where slopes are less than 6 percent and small areas where they range from 10 to 15 percent. Inclusions make up about 15 percent of this mapping unit.

Tilth is difficult to maintain, especially in gullied and galled areas. Poor tilth impedes seed germination, and uniform stands of crops are difficult to obtain. Tillage is restricted to a very narrow range of moisture content to avoid clodding.

Most of the acreage is pine forest and pasture. The hazard of erosion, the low organic-matter content, and the low fertility are concerns in management. Capability unit IVe-1; woodland group 4c2e.

Gills Series

The Gills series consists of deep, somewhat poorly drained upland soils that have a firm, plastic subsoil above a less clayey fragipan. These soils formed in residuum from weathered argillite and chloritic schist. They are on broad, low ridges and adjacent side slopes. Slopes range from 2 to 10 percent.

In a representative profile, the surface layer is dark grayish-brown silt loam about 1 inch thick. The subsurface layer is pale-yellow silt loam 11 inches thick. The main part of the subsoil is pale-brown plastic clay. This rests on a fragipan of silt loam and silty clay loam material that is very hard and brittle. The pan is mottled gray, white, and yellowish brown. Depth to bedrock is 5 to 8 feet.

A few quartz fragments occur in most areas and are common on ridgetops. The subsoil contains varying amounts of rock and gravel. Poorly drained pockets, the plastic subsoil, and the fragipan make this an unproductive soil. Permeability is slow, and available water capacity is high. The organic-matter content is low. Infiltration is moderate. Most of the acreage is in mixed hardwoods, commonly of low quality. Some areas are in pasture and respond favorably to good management.

Representative profile of Gills silt loam, 2 to 6 percent slopes, in a wooded area 0.2 mile east of South Carolina Highway No. 522, 0.5 mile north of County Road No. 123, and 9 miles east of Lancaster:

O1--1 inch to 0, decaying litter mostly of oak leaves and twigs.

A1--0 to 1 inch, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; very friable; many fine roots; extremely acid; abrupt, smooth boundary.

A2--1 to 12 inches, pale-yellow (2.5Y 7/4) silt loam; weak to moderate, fine, granular structure; few, weak, medium, subangular blocky peds; very friable; many fine roots; very strongly acid; clear, smooth boundary.

B1t--12 to 15 inches, pale-yellow (2.5Y 7/4) silty clay loam; weak, medium, subangular blocky structure; friable; strongly acid; clear, smooth boundary.

B21t--15 to 21 inches, pale-brown (10YR 6/3) clay; ped faces are pale brown, ped interiors are light yellowish brown (10YR 6/4) with a few, fine, faint mottles of light brownish gray; moderate, medium, angular and subangular blocky structure; extremely hard, extremely firm, plastic and sticky; complete prominent clay films on ped faces; many fine pores; strongly acid; gradual, wavy boundary.

B22t--21 to 31 inches, pale-brown (10YR 6/3) clay; many, medium, distinct, light-gray and strong-brown mottles; strong, medium and coarse, angular blocky and columnar structure; extremely hard, extremely firm, plastic and sticky; complete prominent clay films on all ped faces; roots follow ped faces; strongly acid; clear, wavy boundary.

Bx--31 to 52 inches, coarsely mottled light-gray, white, and yellowish-brown silt loam and silty clay loam (light-gray and white materials are silt loam, and yellowish-brown material is silty clay loam); weak platy structure which easily parts to weak subangular blocky structure; very hard and brittle; complete prominent clay films; on a few root channels gray streaks tend to be vertical; few fine roots; common fine and medium pores; very strongly acid.

The A1 or Ap horizon ranges from dark grayish brown, pale yellow, and pale brown to light gray. The A horizon ranges from 3 to 14 inches in thickness. The B1 horizon is pale-yellow, brownish-yellow, or yellowish-brown loam, silt loam, or silty clay loam. The B2t horizon is pale-brown or brown clay or silty clay and contains strong-brown and light yellowish-brown mottles. The upper 10 inches of the subsoil contains a few light brownish-gray or light-gray mottles. In some places there are a few manganese concretions on the surface or in the upper part of the B2t horizon. The Bx horizon, or fragipan, is loam, silt loam, silty clay loam, or fine sandy loam and is coarsely mottled with light gray, white, and shades of brown. The pan is commonly more than 15 inches thick. Reaction is extremely acid or very strongly acid in the A horizon, strongly acid in the Bt horizon, and very strongly acid in the Bx horizon.

Gills soils occur with Herndon, Nason, Pickens, Goldston, Iredell, and Worsham soils. They differ from those soils in having a fragipan.

Gills silt loam, 2 to 6 percent slopes (G1B).--This soil is on broad ridges and side slopes. It has the profile described as representative of the series.

Included with this soil in mapping in some of the nearly level areas are small depressions that are poorly drained; areas of Herndon, Nason, Pickens, and Goldston soils; and areas of a soil that has a fragipan but does not have a plastic subsoil. Inclusions make up about 18 percent of this mapping unit.

This Gills soil can be cultivated throughout a medium range of moisture content without clodding. Grain sorghum and oats are grown.

Most of the acreage has been cultivated, but is now pasture and woodland. Some fields are idle. Pastures respond favorably if properly managed. Erosion and the restricted root zone are the major concerns in management. Capability unit IIIe-4; woodland group 5w2.

Gills silt loam, 2 to 6 percent slopes, eroded (G1B2).--This soil is on low, broad ridges and side slopes. There are a few rills and shallow gullies.

Included with this soil in mapping are a few small areas where the subsoil is exposed; areas of Herndon and Nason soils; and a few small areas of a poorly drained soil, in depressions, that contains a fragipan. Inclusions make up about 15 percent of this mapping unit.

This Gills soil can be cultivated throughout only a medium range of moisture content without clodding.

Most of the acreage has been cultivated, but now part of the acreage is pasture, part is woodland, and the rest is idle. Pastures respond favorably if properly managed. Erosion and the restricted root zone are the major concerns in management. Capability unit IVe-2; woodland group 5w2.

Gills silt loam, 6 to 10 percent slopes, eroded (G1C2).--This soil is on narrow ridges and side slopes. There are a few rills, small galled areas, and shallow gullies.

Included with this soil in mapping are a few areas where the subsoil is exposed and areas of Goldston, Pickens, Nason, and Iredell soils. Inclusions make up 30 percent of this mapping unit.

This Gills soil is not suitable for cultivation. Most of the acreage is wooded. A small acreage is used for pasture. Capability unit VIe-3; woodland group 5w2.

Goldston Series

The Goldston series consists of well-drained soils that are moderately deep over weathered rock. These soils are on uplands. They formed in residuum from weathered argillitic rock. Slopes range from 2 to 10 percent.

In a representative profile, the surface layer is yellowish-brown slaty silt loam about 7 inches thick. The subsoil, about 23 inches thick, is brown slaty silt loam mottled with pale brown. It is broken within a distance of a few feet by a discontinuous layer of silty clay loam less than 10 inches thick. Depth to bedrock is 3 feet.

Goldston soils are low in organic-matter content. Infiltration is moderately slow, permeability is moderately rapid, and available water capacity is low. The moderate depth over hard rock is a concern in management. Most of the acreage is forest and pasture.

Representative profile of Goldston slaty silt loam, in an area of Goldston-Pickens complex, 6 to 10 percent slopes, 0.3 mile northwest of State Highway No. 9, 0.1 mile east of County Road No. 28, about 20 miles east of Lancaster:

Ap--0 to 7 inches, yellowish-brown (10YR 5/4) slaty silt loam; weak, medium, granular structure; very friable; many fine and few medium roots; few fine and medium holes; few fine pores; many platy slate fragments 5 to 30 millimeters in size; strongly acid; clear, wavy boundary.

B--7 to 30 inches, brown (7.5YR 5/4) slaty silt loam; common, fine, distinct, pale-brown mottles; weak, medium, subangular blocky structure; very friable; few fine roots; few fine and medium holes; few fine pores; about 40 percent platy slate fragments 5 to over 60 millimeters in size; strongly acid; clear, irregular boundary.

C--30 inches, light olive-brown, weathered argillite rock; reddish-brown coatings on many cleavage faces; strongly acid.

The A horizon ranges from slaty silt loam to loam in texture and from 5 to 8 inches in thickness. It is grayish brown or yellowish brown. About 35 to 60 percent of the soil mass is slate fragments. The B horizon is broken within distances of a few feet by a thin discontinuous Bt horizon of silty clay loam less than 10 inches thick. Reaction is strongly acid or very strongly acid throughout the profile.

Goldston soils are associated with Pickens, Nason, Gills, Herndon, Tatum, and Georgeville soils. They are deeper over hard rock than Pickens soils. In contrast with Nason, Gills, Herndon, Tatum, and Georgeville soils, they have a discontinuous B horizon.

Goldston-Pickens complex, 2 to 6 percent slopes (GpB).--This mapping unit is about 50 percent Goldston soil and 40 percent Pickens soil. The Goldston and Pickens soils are in intricate patterns and cannot be separated at the scale mapped. A few rills have formed, and also, a few gullies about 2 feet deep.

Included with these soils in mapping are areas of Nason, Herndon, and Gills soils.

Slate fragments in the Goldston and Pickens soils seriously hamper tillage operations. The plow layer can be worked within only a medium range of moisture content without clodding.

Much of the acreage is wooded. Pasture responds fairly well under good management. Erosion and the high content of slate fragments are major concerns. Capability unit IVe-3; Goldston soil in woodland group 4o1, Pickens soil in group 4d2.

Goldston-Pickens complex, 6 to 10 percent slopes (GpC).--This mapping unit is about 45 percent Goldston soil and 45 percent Pickens soil. The Goldston and Pickens soils are in intricate patterns and cannot be separated at the scale mapped. A few rills have formed, and also a few gullies about 2 feet deep.

The Goldston soil has the profile described as representative of the Goldston series. The Pickens soil has the profile described under the heading "Pickens Series."

Included with these soils in mapping are areas of Nason and Herndon soils.

Slate fragments in the Goldston and Pickens soils seriously hamper tillage operations. The plow layer can be worked within only a medium range of moisture content without clodding.

Most of the acreage is wooded. Erosion is the major concern in management. Capability unit IVe-3; Goldston soil in woodland group 4o1, Pickens soil in group 4d2.

Gullied Land

Gullied land consists of small to large, severely eroded areas where slopes range from 10 to 40 percent. Some areas continue to erode, and some have been stabilized. The soil material is friable to very firm, depending on the depth to which it has been eroded.

Gullied land, Cecil soil material, sloping (GuC).--About 60 percent of this mapping unit is dissected by shallow to deep gullies. Between the gullies is reddish-brown to yellowish-brown clayey material, a remnant of Cecil soils before they were gullied. In many places gullies have cut into the highly weathered, very friable parent material.

Included in mapping are medium-size areas between gullies where the soils are well developed and have a friable to firm subsoil. Inclusions make up about 25 percent of this mapping unit.

The organic-matter content is low. Infiltration is slow. Runoff is rapid. The available water capacity is low to medium.

Most of the acreage is wooded or idle. Some areas can be developed for recreation, wildlife, and timber. Vegetation is needed to stabilize these gullied areas, but is difficult to establish. Erosion and siltation are concerns in management. Capability unit VIIe-2; no woodland classification.

Gullied land, Cecil soil material, steep (GuF).--About 60 percent of this mapping unit is dissected by shallow to deep gullies in intricate patterns. Between the gullies is reddish-brown to yellowish-brown clayey material, a remnant of Cecil soils before they were gullied. In many places gullies have cut into the weathered parent material.

Included in mapping are medium-size areas between the gullies where the soils are well developed.

Inclusions make up about 15 percent of this mapping unit.

The organic-matter content is low. Infiltration is slow. Runoff is rapid. The available water capacity is low to medium.

Most of the acreage is wooded. Vegetation is needed to stabilize these gullied areas, but is difficult to establish. Many areas can be reclaimed for recreation and wildlife. Erosion and siltation are concerns in management. Capability unit VIIe-2; no woodland classification.

Gullied land, Georgeville soil material, sloping (GvC).--This mapping unit consists of severely eroded areas. More than 35 percent of the acreage has been dissected by shallow to deep gullies in intricate patterns. Between the gullies is a surface layer of reddish-brown to pale-brown silty clay loam to loam and a subsoil of silty clay to clay. In a few areas gullies have cut into the underlying, highly weathered, friable parent material.

Included in mapping are medium-size areas between gullies where the soils are well developed and have a friable to firm subsoil. Inclusions make up about 25 percent of this mapping unit.

The organic-matter content is low. Infiltration is slow. Runoff is rapid. The available water capacity is low to high.

Most of the acreage is wooded or idle. Some areas can be reclaimed for recreation, wildlife, and timber. Erosion and siltation are management concerns. Capability unit VIIe-2; no woodland classification.

Gullied land, Helena soil material, steep (GwF).--This mapping unit consists of severely eroded areas. About 75 percent of the acreage has been dissected by shallow to deep gullies in intricate patterns. Between the gullies the soil material is mostly reddish brown to yellowish brown, plastic, and clayey. In many places, the gullies have cut into the underlying weathered rock.

Included in mapping are areas between gullies where the soils are well developed and have a firm to very firm subsoil. Inclusions make up about 25 percent of this mapping unit.

The organic-matter content is low. Infiltration is slow. Runoff is rapid. Available water capacity is low to high.

Most of the acreage is wooded. Vegetation for stabilization of these gullied areas is hard to establish. Erosion and siltation are concerns in management. Capability unit VIIe-2; no woodland classification.

Helena Series

The Helena series consists of moderately deep, moderately well drained soils on uplands. These soils formed in residuum weathered from argillitic silicic and mafic rock. Slopes range from 2 to 10 percent.

In a representative profile, the surface layer is light brownish-gray fine sandy loam about 5 inches thick. The subsoil is about 25 inches thick. The middle part, which is the thickest and the finest textured part, is very pale brown, firm, plastic sandy clay. Depth to bedrock is 3 to 20 feet.

Helena soils have moderate infiltration, slow permeability, high available water capacity, and low organic-matter content. Most of the acreage is cultivated. The response to irrigation and fertilization is moderate.

Representative profile of Helena fine sandy loam, 2 to 6 percent slopes, eroded, in a cultivated field 5 miles south of Lancaster, 0.4 mile southeast of Jones Crossroads:

Ap--0 to 5 inches, light brownish-gray (2.5Y 6/2) fine sandy loam; weak, fine, granular structure; very friable; many fine roots; few fine quartz pebbles; few quartz cobblestones over 80 millimeters in size on surface; strongly acid; clear, wavy boundary.

B1--5 to 7 inches, light yellowish-brown (2.5Y 6/4) fine sandy loam; few fine streaks of yellowish-brown mottles; weak, fine, subangular blocky structure; friable; many fine roots; few krotovinas; few fine quartz pebbles; strongly acid; clear, wavy boundary.

B2tg--7 to 21 inches, very pale brown (10YR 7/3) sandy clay; common, medium, distinct, brownish-yellow mottles and a few, fine, prominent, red mottles; moderate, medium, subangular blocky structure; firm, hard, plastic; complete distinct clay films on peds; few fine roots and root passages; strongly acid; diffuse, wavy boundary.

B3g--21 to 30 inches, mottled light yellowish-brown (10YR 6/4) and gray (10YR 6/1) clay loam; structureless; firm; gray parts plastic; patchy distinct clay films on gray parts; strongly acid; gradual, wavy boundary.

C--30 inches, gray and yellowish-brown, weathered, compact material; strongly acid.

The A horizon ranges from light brownish gray to grayish brown or brown in color and from 4 to 11 inches in thickness. In some places the subsoil contains a B1 horizon over a slightly plastic to plastic B2t horizon. The B horizon is light yellowish-brown, very pale brown, yellowish-brown, or brownish-yellow sandy clay, clay loam, or clay. It has common mottles of gray, olive yellow, light yellowish brown, yellowish red, and red. The B horizon ranges from about 14 to 30 inches in thickness. Reaction is strongly acid throughout the profile.

Helena soils occur with Wedowee, Appling, Colfax, Gills, Durham, and Wilkes soils. They have a more plastic subsoil than Wedowee, Appling, Colfax, Durham, and Wilkes soils. They do not have a fragipan, which is typical of Gills soils.

Helena fine sandy loam, 2 to 6 percent slopes (HaB).--This soil is on broad ridgetops and long side slopes.

Included with this soil in mapping are small areas of Colfax, Worsham, Durham, and Wedowee soils

in depressions; very small areas of Wilkes soils along ridgetops; a few areas of similar soils where the surface layer is more than 20 inches thick; a few areas where slopes are less than 2 percent and a few where they are more than 6 percent; and a few large areas where the surface layer is sandy loam and some medium-size areas where it is silt loam. Inclusions make up about 20 percent of this mapping unit.

Part of the acreage of this Helena soil is used for cultivated crops and pasture, part is used for timber, and the rest is idle. Most crops common to the county are grown. Erosion is the major concern in management. Capability unit IIe-3; woodland group 3w8.

Helena fine sandy loam, 2 to 6 percent slopes, eroded (HaB2).--This soil is on broad ridgetops and long side slopes. It has the profile described as representative for the series.

Included with this soil in mapping are small areas of Colfax, Worsham, Durham, and Wedowee soils; very small areas of Wilkes soils along ridgetops; a few areas of similar soils where the surface layer is silt loam, sandy loam, or sandy clay loam; and a few areas where slopes are less than 2 percent and a few where they are more than 6 percent. Inclusions make up about 15 percent of this mapping unit.

Most of the acreage of this Helena soil is used for cultivated crops and pasture. Cotton, grain sorghum, and oats are grown. Tall fescue and white clover are the main pasture plants. Erosion is the major concern in management. Capability unit IIIe-3; woodland group 3w8.

Helena fine sandy loam, 6 to 10 percent slopes, eroded (HaC2).--This soil is on broad ridges.

Included with this soil in mapping are small areas of Durham and Wedowee soils; small areas of Wilkes soils along ridge breaks; a few small areas of Helena soils where the plow layer is silt loam or sandy clay loam; and a few areas where slopes are less than 6 percent and a few where they are more than 10 percent. Inclusions make up about 15 percent of this mapping unit.

Most of the acreage of this Helena soil is woodland or pasture. A few small areas are cultivated. Erosion is the major concern in management. Capability unit IVe-2; woodland group 3w8.

Helena fine sandy loam, 2 to 10 percent slopes, severely eroded (HaC3).--This soil is at the head of drainage channels and on short side slopes.

Included with this soil in mapping are areas of Wedowee soils; a few very small areas of Durham soils and even smaller areas of Wilkes soils; areas of Helena soils an acre or more in size that have a sandy loam surface layer; and small areas where slopes are more than 10 percent and small areas where they are less than 2 percent. Inclusions make up about 15 percent of this mapping unit.

Shallow gullies and galled areas make up 10 to 15 percent of the acreage of this Helena soil. The surface layer in these areas is brownish-yellow sandy clay loam and is about 3 inches thick.

Most of the acreage is pasture or woodland. Some small areas are cultivated. Erosion is the major concern in management. Capability unit IVe-2; woodland group 3w8.

Herndon Series

The Herndon series consists of deep, well-drained soils on uplands. These soils formed in residuum weathered from sericitic schist and argillite. They are gently sloping to strongly sloping and are on broad to fairly narrow ridges and side slopes. They are important farming soils.

In a representative profile, the surface layer is reddish-yellow silt loam about 6 inches thick. The upper part of the subsoil is yellowish-red silty clay loam. The next layer is yellowish-red and strong-brown silty clay. The lower part of the subsoil is yellowish-red and strong-brown silty clay loam. The subsoil is about 39 inches thick. The depth to bedrock is 4 to 15 feet.

Herndon soils are suitable for cultivation and respond to good management. Permeability is moderate. Infiltration is moderate where the surface layer is silt loam and slow where it is silty clay loam. Available water capacity is high. Organic-matter content is low.

Representative profile of Herndon silt loam, 2 to 6 percent slopes, eroded, 0.2 mile south of Hopewell Church on county road 0.6 mile north of Gills Creek, 7 miles east of Lancaster:

O1--1/2 inch to 0, decaying pine needles and grass.

Ap--0 to 6 inches, reddish-yellow (7.5YR 6/6) silt loam; weak, fine, granular structure; very friable; many fine and medium roots; few fine pores; few quartz pebbles 5 to 40 millimeters in size; few quartz cobblestones over 80 millimeters in size on the surface; very strongly acid; clear, wavy boundary.

B21t--6 to 20 inches, yellowish-red (5YR 5/6) silty clay loam; few, fine, distinct, red and reddish-yellow mottles; moderate, fine, subangular blocky structure; friable; patchy faint clay films on peds; many fine roots in upper 8 inches; few medium and large roots; few quartz pebbles 5 to 30 millimeters in size; strongly acid; gradual, wavy boundary.

B22t--20 to 34 inches, yellowish-red (5YR 5/6) and strong-brown (7.5YR 5/6) silty clay; few, fine, red mottles; moderate, medium, subangular blocky structure; firm; patchy distinct clay films on peds; few quartz pebbles 5 to 20 millimeters in size; few weathered argillite fragments in lower part; very strongly acid; clear, wavy boundary.

B3t--34 to 45 inches, yellowish-red (5YR 5/6) and strong-brown (7.5YR 5/6) silty clay loam; few, fine, prominent, red mottles and few, fine, distinct, light-gray mottles; weak, medium and coarse, subangular blocky structure; friable; patchy faint clay films on peds; few, fine, deeply weathered argillite fragments; few quartz pebbles 5 to 15 millimeters in size; very strongly acid; gradual, wavy boundary.

C--45 to 52 inches, brownish-yellow (10YR 6/6) and yellow (10YR 7/6), weathered rock that crushes to silt loam; few, coarse, distinct, strong-brown (7.5YR 5/6) mottles; common, fine and medium, prominent, light-gray mottles and few, fine, prominent, yellowish-red mottles; structureless; loose; few weathered argillite fragments; very strongly acid.

Angular quartz pebbles range from few to common on the surface and in the A horizon. The A horizon ranges from 3 to 6 inches in thickness and from silt loam to silty clay loam in texture. The Ap horizon ranges from reddish yellow to yellowish brown or brown. The Bt horizon is yellowish-red, reddish-yellow, brownish-yellow, or strong-brown, friable to firm silty clay loam, silty clay, or clay. Mottles of pale brown or red are in many pedons. The C horizon ranges from sericitic schist to argillite and crushes to silt loam or silty clay loam. Reaction is strongly acid or very strongly acid throughout the profile.

Herndon soils occur with Georgeville, Tatum, Nason, Gills, Pickens, and Goldston soils. They have a yellower subsoil than Georgeville and Tatum soils. They have a thicker Bt horizon than Nason, Pickens, and Goldston soils. They do not have a fragipan, which is typical of Gills soils.

Herndon silt loam, 2 to 6 percent slopes, eroded (HdB2).--This soil is on broad side slopes. It has the profile described as representative for the series. Rills and medium-size galled areas are common.

Included with this soil in mapping are small areas of Herndon soils where the surface layer is fine sandy loam, silty clay loam, or sandy loam; small areas of Georgeville, Gills, Nason, Pickens, and Goldston soils; and a few areas on the smoother parts of ridgetops where slopes are less than 2 percent and a few where they range from 6 to 10 percent. Inclusions make up about 20 percent of this mapping unit.

This Herndon soil can be tilled within only a medium range of moisture content without clodding. Tilth and infiltration of the plow layer are favorable for seed germination, and uniform stands of crops are easy to obtain.

Most of the acreage is in crops, pasture, and pine trees. All crops common to the county are grown. Controlling erosion is the major concern in management. Capability unit IIe-2; woodland group 3o7.

Herndon silt loam, 6 to 10 percent slopes, eroded (HdC2).--This soil is on broad side slopes. Rills, a few shallow gullies, and medium-size galled areas are common.

Included with this soil in mapping are small areas of Herndon soils that have a surface layer of fine sandy loam, silty clay loam, or sandy loam; and areas of Georgeville, Nason, Gills, and Goldston soils. Inclusions make up about 20 percent of the mapping unit.

This Herndon soil can be tilled within only a medium range of moisture content. Tilth is unfavorable in the galled areas and around the rills and gullies. Seed germination is impeded in the galled areas.

Most of the acreage has been cultivated. Now, much of the acreage is pasture, and a large part has been planted to pines. Cotton, corn, grain sorghum, oats, tall fescue, and white clover are the chief crops. Controlling erosion is the major concern in management. Capability unit IIIe-2; woodland group 3o7.

Herndon silt loam, 10 to 15 percent slopes, eroded (HdD2).--This soil is on narrow ridges and side slopes. Rills and a few shallow gullies are common.

Included with this soil in mapping are small areas of Herndon soils where the surface layer is fine sandy loam, silty clay loam, or sandy loam; and areas of Georgeville, Nason, Gills, and Goldston soils. Inclusions make up about 20 percent of this mapping unit.

Most of the acreage of this Herndon soil has been cultivated. Much of the acreage is now pasture, and a large part has been planted to pines. Controlling erosion is the major concern in management. Capability unit IVe-1; woodland group 3o7.

Herndon silty clay loam, 2 to 6 percent slopes, severely eroded (HeB3).--This soil is on narrow to medium-wide ridgetops. Its profile is similar to the profile described as representative for the series, but the surface layer is silty clay loam. Accelerated sheet erosion has removed the original surface layer from most of the area. Runoff is excessive and rapid, and water erosion is a severe hazard. Rills, shallow gullies, and medium-size to large galled areas are common.

Included with this soil in mapping are small areas where slopes are more than 6 percent; small areas where the surface layer is sandy loam and large areas where it is silt loam; and areas of Nason, Goldston, and Georgeville soils. Inclusions make up less than 25 percent of this mapping unit.

Tilth is hard to maintain on this Herndon soil particularly in gullied and galled areas. Poor tilth impedes seed germination, and uniform stands of crops are difficult to obtain. Tillage is restricted to a very narrow range of moisture content.

Most of the acreage is used for cultivated crops and pasture. Part of it is idle. Cotton, corn, grain sorghum, oats, tall fescue, and white clover are the chief crops. A large amount of fertilizer is required. Controlling erosion, maintaining fertility, and maintaining the organic-matter content are the major concerns in management. Capability unit IIIe-2; woodland group 4c2e.

Herndon silty clay loam, 6 to 10 percent slopes, severely eroded (HeC3).--This soil is on breaks around small and medium-size drainageways. Its profile is similar to the profile described as representative for the series, but the surface layer is silty clay loam. Accelerated sheet erosion has

removed the original surface layer from most of the area. Water erosion is a severe hazard because runoff is excessive and rapid.

Included with this soil in mapping are small areas of Nason, Tatum, Goldston, and Georgeville soils. Inclusions make up about 25 percent of this mapping unit.

Tilth is hard to maintain on this Herndon soil, particularly in the gullied and galled areas. Poor tilth impedes seed germination, and uniform stands of crops are difficult to obtain. Tillage is restricted to a very narrow range of moisture content.

Most of the acreage is woodland and pasture. Capability unit IVe-1; woodland group 4c2e.

Iredell Series

The Iredell series consists of moderately well drained soils that are moderately deep over weathered rock material. These soils formed in residuum weathered from basic rocks, such as diorite, gabbro, and hornblende gneiss. Slopes range from 2 to 10 percent.

In a representative profile, the surface layer is grayish-brown loam about 9 inches thick. The subsoil is light olive-brown, very plastic clay about 20 inches thick. Below this is olive-gray, weathered rock material that contains a few fragments of partially weathered rock. Depth to bedrock is more than 3 feet.

Internal drainage and permeability are slow. The infiltration rate is moderate, and the available water capacity is high. Organic-matter content is low. If well managed, these soils are suited to pasture mixtures and row crops.

Representative profile of Iredell loam, in an area of Iredell complex, 2 to 6 percent slopes, eroded, 20 feet east of County Road No. 28, 0.5 mile north of County Road No. 56, 3 miles northwest of Lancaster:

Ap--0 to 9 inches, grayish-brown (2.5Y 5/2) loam; moderate, coarse, granular structure; friable; many fine and few medium roots; many fine and medium holes; many fine pores; few quartz pebbles 2 to 10 millimeters in size; few to common concretions having dark-brown surfaces and black centers and about 5 millimeters in size; many coarse sand grains; medium acid; clear, wavy boundary.

Bt--9 to 29 inches, light olive-brown (2.5Y 5/4) clay; weak, coarse, angular to subangular blocky structure (structure stronger and more angular when dry, structureless when wet); very firm, sticky and very plastic, hard; complete prominent clay films on peds; few fine and medium roots; few fine holes; few fine pores; few, fine, dark-brown and black concretions; few coarse sand grains and few quartz pebbles to 5 millimeters in size; slightly acid; gradual, wavy boundary.

C--29 to 36 inches, olive-gray (5Y 5/2), weathered rock material that crushes to fine sandy loam; weak, fine, granular structure; firm in place, but very friable to loose when disturbed; few, soft, dark-colored angular (diorite) pebbles to 10 millimeters in size; slightly acid; hard rock at a depth of 36 inches.

The Ap horizon ranges from 5 to 10 inches in thickness and is dark gray, dark grayish brown, or grayish brown. The Bt horizon is dark yellowish brown, yellowish brown, light olive brown, olive brown, or olive, and gray mottles are common in the lower part. The thickness of the solum ranges from 20 to 30 inches. The C horizon ranges from sandy loam to clay loam and contains fragments of weathered rock. Reaction is medium acid in the A horizon, slightly acid in the Bt horizon, and slightly acid to neutral in the C horizon.

Iredell soils occur with Mecklenburg, Enon, and Wilkes soils. They have a more plastic subsoil than Mecklenburg and Enon soils. They have a thicker solum than Wilkes soils.

Iredell complex, 2 to 6 percent slopes, eroded (IrB2).--This mapping unit is about 65 percent Iredell soils and 20 percent similar soils that have a surface layer and subsoil less than 20 inches thick. These soils occur in such an intricate pattern that it is not practical to consider them separately. A few rills and small galled areas have formed.

Iredell soils have the profile described as representative for the series. They are on medium-wide ridges and side slopes. A few boulders interfere with management.

The other soils in this complex are similar to Iredell soils in texture and color of the surface layer, but their subsoil is less than 20 inches thick and in some places is discontinuous. Where the subsoil is discontinuous, rock is likely to be within a depth of 1 foot.

Included with this soil in mapping are areas of Enon, Mecklenburg, and Wilkes soils. Inclusions make up about 15 percent of this mapping unit.

Part of the acreage of this Iredell soil is pasture, part is hardwood forest, and part is under cultivation. Corn, cotton, oats, grain sorghum, tall fescue, and white clover are the chief crops. Controlling erosion and maintaining the organic-matter content are concerns in management. Capability unit IIe-4; woodland group 4c2.

Iredell complex, 6 to 10 percent slopes, eroded (IrC2).--This mapping unit is about 65 percent Iredell soils and 20 percent similar soils that have a solum less than 20 inches thick. These soils occur in such an intricate pattern that it is not practical to consider them separately. A few rills and small galled areas have formed.

Iredell soils are on medium-wide to narrow ridgetops and side slopes. A few boulders hamper management.

The other soils in this complex are similar to Iredell soils in texture and color of the surface layer, but their subsoil is less than 20 inches

thick and in some places is discontinuous. Where the subsoil is discontinuous, rock is likely to be within a depth of 1 foot.

Included with this soil in mapping are areas of Enon, Mecklenburg, and Wilkes soils. Inclusions make up about 15 percent of this mapping unit.

Most of the acreage of this Iredell soil is pasture and hardwood forest. Controlling erosion and maintaining organic-matter content are concerns in management. Capability unit IVe-2; woodland group 4c2.

Lockhart Series

The Lockhart series consists of deep, well-drained soils on uplands. These soils formed in residuum weathered from coarse-grained porphyritic granite and biotite-quartz monzonite. They are 35 to 50 percent weathered feldspar and quartz fragments. Slopes range from 2 to 40 percent.

In a representative profile, the surface layer is dark grayish-brown gravelly sandy loam about 6 inches thick. The upper 4 inches of the subsoil is yellowish-brown sandy clay loam. The next 32 inches is yellowish-red, friable sandy clay loam. The lower 12 inches is reddish-brown sandy clay loam that gradually grades to deeply weathered rock material. Depth to bedrock is 6 to 15 feet.

Infiltration is rapid, permeability is moderately rapid, and available water capacity is medium. Organic-matter content is low. Some of the acreage is cultivated. Most of it is in timber and pasture. In some areas these soils respond well to woodland management.

Representative profile of Lockhart gravelly sandy loam, 6 to 10 percent slopes, 2 miles northeast of Taxahaw and 400 yards west of Lynches River on County Road No. 37:

Ap--0 to 6 inches, dark grayish-brown (10YR 4/2) gravelly sandy loam; weak, medium, granular structure; very friable; many fine roots; many fine pores; 30 percent pebble-size feldspar fragments; slightly acid; abrupt, smooth boundary.

B1t--6 to 10 inches, yellowish-brown (10YR 5/4) sandy clay loam; weak, medium, granular structure; very friable; few fine and medium roots; 35 percent feldspar fragments; few coarse quartz grains; slightly acid; clear, wavy boundary.

B21t--10 to 22 inches, yellowish-red (5YR 5/8) sandy clay loam; weak, coarse, subangular blocky structure; friable, slightly sticky; patchy faint clay films on peds; complete distinct clay films on feldspar crystals; few fine and medium roots; 45 percent feldspar fragments; few coarse quartz grains; slightly acid; gradual, wavy boundary.

B22t--22 to 42 inches, yellowish-red (5YR 4/6) sandy clay loam; weak, coarse, subangular blocky structure; friable, slightly sticky; patchy, distinct clay films around feldspar crystals; 45 percent feldspar fragments; few coarse quartz grains; few fine biotite mica flakes; few rock fragments high in dark-colored minerals; medium acid; gradual, wavy boundary.

B3t--42 to 54 inches, reddish-brown (5YR 5/4) sandy clay loam; weak, coarse, subangular blocky structure; friable, crushes to loose mass when dry, slightly sticky; 45 percent feldspar fragments; few coarse quartz fragments; few fine biotite mica flakes; few rock fragments high in dark-colored minerals; medium acid; gradual, wavy boundary.

C--54 to 72 inches, light yellowish-brown (10YR 6/4), weathered rock material that crushes to sandy loam; structureless; very friable; about 50 percent feldspar fragments; many coarse-grained rock fragments 2 to 7 millimeters in size; few light and dark-colored mica flakes and few rock fragments high in dark-colored minerals; strongly acid.

Weathered feldspar and quartz fragments make up 35 to 50 percent of the soil mass. The A horizon ranges from 6 to 15 inches in thickness and from dark grayish brown to brown in color. The Bt horizon ranges from sandy clay loam or clay loam to sandy loam. It is less than 20 percent silt. The upper part is yellowish red, strong brown, or yellowish brown. The upper 20 inches is 20 to 35 percent clay. The middle and lower parts are 40 to 50 percent weathered feldspar and quartz fragments. Narrow dikes of quartz extend into the A horizon in some areas. Fine mica flakes and dark-colored minerals are common. Reaction is medium acid or slightly acid in the A horizon, medium acid to neutral in the B horizon, and strongly acid to medium acid in the C horizon.

The Lockhart soils occur with Cecil, Pacolet, Appling, Wedowee, and Wilkes soils. They have more pebble-size fragments than any of the other soils. They have a thicker Bt horizon than Wilkes soils.

Lockhart gravelly sandy loam, 2 to 6 percent slopes (LgB).--This soil is on broad ridges and side slopes.

Included with this soil in mapping are small areas of similar soils that have a sandy clay loam surface layer; small areas where slopes are more than 6 percent; medium-size areas of Pacolet soils; and a few small areas of Cecil, Appling, and Wilkes soils. Inclusions make up about 20 percent of this mapping unit.

The plow layer of this Lockhart soil is easy to keep in good tilth and can be tilled throughout a wide range of moisture content.

Most of the acreage is cultivated. Most crops common in the county are grown. Low fertility and erosion are the main concerns in management. Capability unit IIe-2; woodland group 3o7.

Lockhart gravelly sandy loam, 6 to 10 percent slopes (LgC).--This soil is on broad ridges and side slopes. It has the profile described as representative for the series.

Included with this soil in mapping are small areas of a similar soil that has a sandy clay loam surface layer; small areas where slopes are more than 10 percent; medium-size areas of Pacolet soils; and a few small areas of Cecil, Appling, and Wilkes soils. Inclusions make up about 20 percent of this mapping unit.

The plow layer of this Lockhart soil is easy to keep in good tilth and can be tilled throughout a wide range of moisture content.

Much of the acreage is cultivated. Cotton, corn, grain sorghum, oats, tall fescue, and white clover are grown. Low fertility and erosion are the main concerns in management. Capability unit IIIe-2; woodland group 3o7.

Lockhart gravelly sandy loam, 10 to 15 percent slopes (LgD).--This soil is on narrow ridges and side slopes. Boulders are numerous.

Included with this soil in mapping are medium-size areas of Pacolet and Wedowee soils and a few small areas of Cecil, Appling, and Wilkes soils. Inclusions make up about 20 percent of this mapping unit.

Some of the acreage is cleared, but this Lockhart soil is not well suited to cultivated crops. A few areas are used for pasture. Most of the acreage is a mixed pine and low-quality hardwood forest. Low fertility and erosion are the major concerns in management. Capability unit IVe-1; woodland group 3o7.

Lockhart gravelly sandy loam, 15 to 25 percent slopes (LgE).--This soil is on narrow ridges and side slopes. Boulders are numerous.

Included with this soil in mapping are medium-size areas of Pacolet and Wedowee soils and a few small areas of Cecil, Appling, and Wilkes soils. Inclusions make up about 20 percent of this mapping unit.

Some of the acreage is cleared, but this Lockhart soil is not suitable for cultivation. Most of the acreage is a mixed pine and low-quality hardwood forest. Erosion is the major concern in management. Capability unit VIIe-1; woodland group 3r8.

Lockhart gravelly sandy loam, 25 to 40 percent slopes (LgF).--This soil is on narrow ridges and steep side slopes. Boulders are numerous.

Included with this soil in mapping are medium-size areas of Pacolet and Wedowee soils and a few small areas of Cecil, Appling, and Wilkes soils. Inclusions make up about 20 percent of this mapping unit.

Some of the acreage is cleared, but this Lockhart soil is not suitable for cultivation. Most of the acreage is a mixed pine and low-quality hardwood forest. Erosion is the major concern in management. Capability unit VIIe-1; woodland group 3r8.

Masada Series

The Masada series consists of deep, well-drained soils along low stream terraces throughout the county. These soils formed in loamy sediment. Slopes range from 2 to 6 percent.

In a representative profile, the surface layer is dark yellowish-brown silt loam about 9 inches thick. The subsoil extends to a depth of 72 inches. It is yellowish-brown silt loam in the upper part, brownish-yellow and light yellowish-brown silty clay loam in the middle part, and gray clay loam in the lower part. Depth to bedrock is 5 to 20 feet.

These soils are mainly woodland or pasture. Small areas are cultivated. Infiltration and permeability are moderate. Available water capacity is high. The organic-matter content is low.

The Masada soils in this county are mapped only with Altavista soils.

Representative profile of Masada silt loam, in an area of Masada and Altavista soils, 2 to 6 percent slopes, under a stand of loblolly pine 200 yards west of Cane Creek, 200 yards south of South Carolina Highway No. 9, 3.5 miles west of Lancaster:

O1--1 inch to 0, loose pine needles and leaves underlain by a thin layer of partly disintegrated leaves and twigs 1 to 2 inches thick.

Ap--0 to 9 inches, dark yellowish-brown (10YR 4/4) silt loam; moderate, medium, granular structure; very friable; few fine tree roots; strongly acid; clear, wavy boundary.

B1--9 to 15 inches, yellowish-brown (10YR 5/6) silt loam; moderate, medium, angular blocky structure; friable; patchy faint clay films on vertical pores; few fine tree roots and common fine pores; strongly acid; clear, wavy boundary.

B21t--15 to 30 inches, brownish-yellow (10YR 6/6) silty clay loam; common, medium, distinct, very pale brown mottles; moderate, medium, subangular blocky structure; friable, slightly sticky; complete faint clay films on ped faces and in pores; few fine tree roots; common fine pores; few angular and rounded quartz pebbles; strongly acid; gradual, wavy boundary.

B22t--30 to 42 inches, light yellowish-brown (10YR 6/4) silty clay loam; common, fine, distinct, light-gray mottles; weak, medium, subangular blocky structure; friable, slightly sticky; complete faint clay films on ped faces and in pores; few fine and medium-size roots; common fine pores; few, fine, angular, and rounded quartz pebbles; strongly acid; diffuse, irregular boundary.

B23t--42 to 50 inches, brownish-yellow (10YR 6/6) clay loam; common, coarse, distinct, light-gray (10YR 7/1) mottles; weak, medium, subangular blocky structure; friable, slightly sticky, hard; complete faint clay films on ped faces; few fine tree roots; few angular quartz pebbles; strongly acid; gradual, wavy boundary.

B24t--50 to 72 inches, gray (5Y 6/1) clay loam; many, fine and medium, prominent, yellowish-brown mottles; weak, coarse, angular blocky structure; firm, sticky and slightly plastic, hard; patchy faint clay films on vertical ped faces; strongly acid.

The A horizon ranges from 6 to 12 inches in thickness and is dark brown, dark yellowish brown,

or grayish brown. The Bt horizon ranges from silt loam to clay loam. It is brownish yellow to light yellowish brown and has gray mottles below a depth of 30 inches. It ranges from nonplastic to slightly plastic and from friable to firm. Reaction is medium acid to strongly acid throughout the profile. There are few to common, angular and rounded quartz pebbles in the form of discontinuous stone lines.

Masada soils are similar to Altavista soils but have a coarser textured subsoil.

Masada and Altavista soils, 2 to 6 percent slopes (MaB).--This mapping unit is about 55 percent Masada soil and 25 percent Altavista soil. These soils are along low stream terraces. Some areas are Masada soil, some are Altavista soil, and some contain both soils. Because these soils are closely associated and require similar management, it is not practical to consider them separately.

The Masada soil has the profile described as representative for the Masada series. The Altavista soil has the profile described under the heading "Altavista Series."

Included with these soils in mapping are small and medium-size areas of an unclassified soil that has a clay subsoil; small areas of Worsham soils; and on some of the bottom land, small areas of nearly level soils that have a fragipan between depths of 20 and 40 inches. Inclusions total about 20 percent of this mapping unit.

The plow layer of Masada and Altavista soils is easy to keep in good tilth and can be worked throughout a wide range of moisture content.

These soils are mainly woodland or pasture; small areas are cultivated. All crops common in the county are grown. Erosion, low fertility, and the susceptibility to flooding 1 year in 5 are concerns in management. Capability unit IIe-1; Masada soil in woodland group 3o7, Altavista soil in group 2w8.

Mecklenburg Series

The Mecklenburg series consists of well-drained soils on uplands. These soils are moderately deep over weathered rock material. They formed in residuum weathered from basic rocks, such as hornblende gneiss, gabbro, and diorite. Slopes range from 2 to 15 percent. Mecklenburg soils are not extensive in this county.

In a representative profile, the surface layer is reddish-brown fine sandy loam about 4 inches thick. The subsoil is about 28 inches thick. It is yellowish-red, slightly plastic clay in the upper part and clay loam mottled with yellowish brown to strong brown in the lower part. Below this is weathered rock material mottled with strong brown, reddish yellow, and pinkish white. Depth to bedrock is 4 to 15 feet.

Under good management, the less sloping areas of these soils are suitable for cultivation. Permeability is slow. Infiltration is moderate where the surface layer is fine sandy loam and slow where it is clay loam. Available water capacity is high. Organic-matter content is low.

Representative profile of Mecklenburg fine sandy loam, 2 to 6 percent slopes, eroded, 500 feet southeast of County Road No. 162, 50 feet northeast of County Road No. 29, 600 yards southeast of Waxhaw Creek, 9 miles northwest of Lancaster:

Ap--0 to 4 inches, reddish-brown (5YR 5/3) fine sandy loam; weak, fine, subangular blocky structure; sticky, friable; many fine grass roots; few small manganese concretions; few fine and coarse pebbles; medium acid; abrupt, wavy boundary.

B2t--4 to 18 inches, yellowish-red (5YR 4/6) clay; few, fine, prominent, yellowish-brown mottles; moderate, medium, subangular blocky structure; sticky, slightly plastic, firm; complete prominent clay films on ped faces; few fine grass roots; few medium krotovinas; few to common fine mica flakes; slightly acid; gradual, wavy boundary.

B3t--18 to 32 inches, yellowish-red (5YR 4/8) clay loam; common, medium, distinct, strong-brown mottles; weak, medium, subangular blocky structure; sticky, friable; patchy distinct clay films on most vertical ped faces; few fine grass roots; common fine mica flakes; slightly acid; diffuse, wavy boundary.

C--32 to 42 inches, strong-brown (7.5YR 5/8), weathered rock that crushes to clay loam; many, medium, faint, reddish-yellow mottles and few, fine, distinct, pinkish-white mottles; friable; patchy faint clay coatings on vertical cracks of weathered rock; many fine mica flakes; slightly acid.

The A horizon is reddish-brown to yellowish-red or dark-brown fine sandy loam to clay loam 3 to 7 inches thick. Dark-colored concretions 5 to 10 millimeters in diameter commonly are on the surface and are likely to be in all horizons. The B2t horizon ranges from yellowish red to reddish brown. Mottles of yellowish brown, strong brown, and red are common. The B2t horizon ranges from sandy clay to clay and is 40 to 60 percent clay. It is firm and slightly plastic to plastic. The B3 horizon is yellowish-red or strong-brown sandy clay loam, clay loam, or sandy clay. The amount of mottling varies. Depth to the C horizon ranges from 30 to 45 inches. Reaction is medium acid to slightly acid throughout.

Mecklenburg soils occur with Davidson, Cecil, Enon, Iredell, and Wilkes soils. They have higher base saturation than Cecil or Davidson soils. They have a redder Bt horizon than Enon, Iredell, and Wilkes soils.

Mecklenburg fine sandy loam, 2 to 6 percent slopes, eroded (McB2).--This soil is on medium-wide ridges and side slopes. It has the profile described as representative for the series. Rills and small to medium-size galled areas are common.

Included with this soil in mapping are many small areas of strongly acid soils that contain common to many fine mica flakes; medium-size areas of a similar soil that has a loam surface layer; and small

areas of Davidson, Cecil, Enon, Iredell, and Wilkes soils. Inclusions make up about 30 percent of this mapping unit.

Except in galled areas, tilth is fairly easy to maintain on this Mecklenburg soil. The poor tilth in galled areas impedes seed germination, and uniform stands of crops are difficult to obtain. Tillage should be restricted to a narrow range of moisture content to avoid clodding.

Much of the acreage is pasture. The response to management is good, and most crops common to the county are grown. Controlling erosion and obtaining good stands of crops are the major concerns. Capability unit IIe-3; woodland group 4o1.

Mecklenburg fine sandy loam, 6 to 10 percent slopes, eroded (McC2).--This soil is on medium-wide to narrow ridges and side slopes. Rills and small to medium-size galled areas are common.

Included with this soil in mapping are many small areas of strongly acid soils that contain common to many fine mica flakes; medium-size areas of similar soils that have a loam surface layer; and small areas of Davidson, Cecil, Enon, and Wilkes soils. Inclusions make up about 30 percent of this mapping unit.

Except in galled areas, tilth is fairly easy to maintain on this Mecklenburg soil. The poor tilth in galled areas impedes seed germination, and uniform stands of crops are difficult to obtain. Tillage reaches the top of the subsoil material in most areas and is restricted to a narrow range of moisture content to avoid clodding.

Much of the acreage is pasture. The response to management is good. Cotton, grain sorghum, oats, tall fescue, and white clover are grown. Controlling erosion and obtaining good stands of crops are the major concerns. Capability unit IIIe-3; woodland group 4o1.

Mecklenburg fine sandy loam, 10 to 15 percent slopes, eroded (McD2).--This soil is on breaks near the drainageways. Rills and medium-size galled areas are common. Runoff is rapid.

Included with this soil in mapping are many small areas of strongly acid soils that contain common to many fine mica flakes; medium-size areas of similar soils that have a loam surface layer; and small areas of Davidson, Cecil, Enon, and Wilkes soils. Inclusions make up about 30 percent of this mapping unit.

Except in galled areas, tilth is fairly easy to maintain on this Mecklenburg soil. The poor tilth in galled areas impedes seed germination, and uniform stands of crops are difficult to obtain. Tillage is restricted to a narrow range of moisture content to avoid clodding.

Most of the acreage is wooded; a few areas are in permanent pasture. Controlling erosion and obtaining good stands of crops are the major concerns in management. Capability unit IVe-2; woodland group 4o1.

Mecklenburg clay loam, 6 to 10 percent slopes, severely eroded (MkC3).--This soil is on medium-wide to narrow ridges and side slopes. Its profile is similar to the profile described as representative for the series, but the surface layer is clay loam. The subsoil is exposed in most places. Runoff is very rapid. Shallow gullies are common, and a few moderately deep gullies have formed.

Included with this soil in mapping are many small areas of strongly acid soils that contain common to many fine mica flakes; and small areas of Davidson, Cecil, Enon, and Wilkes soils. Inclusions make up about 30 percent of this mapping unit.

Poor tilth on this Mecklenburg soil impedes seed germination, and uniform stands of crops are difficult to obtain. Tillage is restricted to a very narrow range of moisture content to avoid clodding. The root zone is about 25 inches deep in most areas.

Most of the acreage has been cultivated. Now, some of it is used for pasture, and the rest is wooded or idle. Controlling erosion and obtaining good stands of crops are the major concerns in management. Capability unit IVe-2; woodland group 4c2e.

Nason Series

The Nason series consists of well-drained, strongly sloping to moderately steep soils on uplands. These soils are moderately deep over weathered rock material. They formed in residuum weathered from sericitic schist and argillite.

In a representative profile, the surface layer is light yellowish-brown loam about 3 inches thick. The subsoil extends to a depth of 29 inches. It is reddish-yellow loam in the upper part, yellowish-red silty clay loam in the middle part, and reddish-yellow silt loam in the lower part. Depth to bedrock is 4 to 10 feet.

Infiltration is moderate where the surface layer is loam and moderately slow where it is silty clay loam. Permeability is moderate, and available water capacity is medium. Organic-matter content is low. Under good management, the less sloping soils can be cultivated. About 70 percent of the acreage is forest. The rest is pastured, idle, or cultivated.

Representative profile of Nason loam, 10 to 15 percent slopes, eroded, in an area of young pines 500 yards southwest of Macedonia Church, 4 miles north of Van Wyck on County Road No. 55:

Ap--0 to 3 inches, light yellowish-brown (10YR 6/4) loam; moderate, fine, granular structure; very friable; many fine roots; very strongly acid; clear, wavy boundary.

B1--3 to 6 inches, reddish-yellow (7.5YR 6/6) loam; moderate, fine, subangular blocky structure; very friable; few, patchy, faint clay films on root passages; few fine and medium roots; few fine holes; abundant fine pores; very strongly acid; clear, smooth boundary.

B2t--6 to 18 inches, yellowish-red (5YR 5/6) silty clay loam; strong, medium, subangular blocky structure; friable; complete distinct clay films on peds and in pores; few fine roots;

few fine holes; few fine pores; few krotovinas; very strongly acid; gradual, wavy boundary.

B3t--18 to 29 inches, reddish-yellow (5YR 6/8) silt loam; weak, coarse, subangular blocky structure; very friable; patchy faint clay films on peds; very strongly acid; gradual, wavy boundary.

C--29 to 42 inches, reddish-yellow (7.5YR 6/6), weathered sericitic schist that crushes to silt loam; common, fine, distinct, very pale brown mottles; structureless; very friable; very strongly acid.

The A horizon is loam or silty clay loam 3 to 6 inches thick. It is dark grayish brown, brown, yellowish brown, or light yellowish brown. In places there is no A2 horizon. The Bt horizon ranges from silty clay loam to silty clay in texture and from 15 to 30 inches in thickness. It is 35 to 50 percent clay. The B2t horizon is friable to firm. In most places the Bt and C horizons contain few to common fine mica flakes. Reaction is strongly acid to very strongly acid. The B3 horizon is yellowish-red or reddish-yellow silt loam or silty clay loam. Red and brown mottles are common. White angular quartz pebbles and rock are few to common on the surface. In some places laminated schist fragments occur in lower layers of the subsoil and in the C horizon. Reaction is very strongly acid or strongly acid.

Nason soils occur with Herndon, Georgeville, Tatum, Goldston, and Pickens soils. They have a thinner subsoil than Herndon and Georgeville soils. They have fewer coarse fragments throughout the profile than Goldston and Pickens soils. They are yellower than Tatum soils.

Nason loam, 10 to 15 percent slopes, eroded (NlD2).--This soil is on medium-wide to narrow ridges. It has the profile described as representative for the series.

Included with this soil in mapping are a few small gullied and galled areas; small areas of soils that have a silty clay loam or sandy loam surface layer; small areas of Herndon, Georgeville, Tatum, Goldston, and Pickens soils; a few small areas where slopes are less than 10 percent and a few where they are more than 15 percent; and small areas of soils that have a pale-yellow subsoil. Inclusions make up about 20 percent of this mapping unit.

This Nason soil is not well suited to cultivated crops. A small part of the acreage is pasture, but most of it is cutover hardwood forest. Some areas have been cleared and planted to loblolly pine. Erosion is the major concern in management. Capability unit IVe-1; woodland group 3o7.

Nason loam, 15 to 25 percent slopes, eroded (NlE2).--This soil is on the breaks around drainageways.

Included with this soil in mapping are a few small gullied and galled areas; small areas of soils that have a silty clay loam or sandy loam surface layer; small areas of Herndon, Georgeville, Tatum, Goldston, and Pickens soils; a few small areas where slopes are less than 15 percent and a few where they are more than 25 percent; and small areas of soils, similar to this Nason soil, that have a pale-yellow subsoil. Inclusions make up about 15 percent of this mapping unit.

This Nason soil is not suitable for cultivation. Much of the acreage is in cutover hardwoods. Some areas have been cleared and planted to loblolly pine. Capability unit VIe-1; woodland group 3r8.

Nason silty clay loam, 10 to 25 percent slopes, severely eroded (NsE3).--This soil is on narrow ridges and side slopes. Its profile is similar to the profile described as representative for the series, but its surface layer is silty clay loam. Small gullies and a few deep gullies are common.

Included with this soil in mapping are areas of soils that have a sandy loam, silt loam, or loam surface layer; small areas of Herndon, Georgeville, Tatum, Goldston, and Pickens soils; and a few small areas where slopes are less than 10 percent and a few where they are more than 25 percent. Inclusions make up about 16 percent of this mapping unit.

This Nason soil is not suitable for cultivation. Much of the acreage is in cutover hardwoods. Some areas have been planted to loblolly pine. Capability unit VIIe-1; woodland group 4c3e.

Pacolet Series

The Pacolet series consists of well-drained soils on uplands. These soils are moderately deep over weathered rock. They formed in residuum derived from granite and gneiss. Slopes range from 2 to 40 percent.

In a representative profile, the surface layer is brown sandy loam about 4 inches thick. The subsoil extends to a depth of about 30 inches. It is red clay in the upper part and red clay loam mixed with many feldspar crystals in the middle and lower parts. Below this is very pale brown and red rock that crushes to sandy loam. Depth to bedrock is more than 10 feet.

Pacolet soils are moderately permeable and have moderate infiltration. They have medium available water capacity. They are low in content of organic matter. The less sloping areas have been cultivated, but most of these are now forest.

Representative profile of Pacolet sandy loam, 2 to 6 percent slopes, eroded, 10 miles southwest of Heath Springs in a field of shortleaf pine, 50 feet south of South Carolina Highway No. 522, 300 feet north of Kershaw County line:

Ap--0 to 4 inches, brown (7.5YR 4/4) sandy loam; weak, medium, granular structure; very friable; few quartz pebbles; very strongly acid; clear, smooth boundary.

B21t--4 to 10 inches, red (2.5YR 4/6) clay; strong, medium, subangular blocky structure; friable, sticky; complete prominent clay films on ped faces; many fine grass roots; few fine holes; few fine mica flakes; strongly acid; gradual, smooth boundary.

B22t--10 to 21 inches, red (2.5YR 4/6) clay loam; many, medium, distinct, yellowish-red mottles; moderate, medium, subangular blocky structure; friable, slightly sticky; complete distinct clay films on ped faces; few medium holes; few fine pores; many highly weathered feldspar crystals; strongly acid; gradual, wavy boundary.

B3t--21 to 30 inches, red (2.5YR 4/6) clay loam; many, medium, distinct, brownish-yellow to yellowish-red, highly weathered feldspar crystals; moderate, medium and coarse, subangular blocky structure; friable, slightly sticky; patchy faint clay films on ped faces; few fine grass roots and common fine pores; few quartz pebbles; few fine mica flakes; strongly acid; diffuse, wavy boundary.

C--30 to 72 inches, brown, very pale brown, and red, weathered rock that crushes to sandy loam; structureless; very friable, nonsticky; many, fine and medium, highly weathered feldspar crystals; common fine quartz pebbles; common fine mica flakes; strongly acid.

In some places the Ap horizon is brown, reddish-brown, or yellowish-red sandy loam 3 to 5 inches thick. In others it is reddish-brown to red clay loam 2 to 5 inches thick. The Bt horizon is clay loam, sandy clay, or clay and is friable to firm. In most areas, the B horizon contains few to common fine mica flakes, and in many areas it contains common to many weathered feldspar fragments. Depth to the C horizon is less than 40 inches. The C horizon is thick, highly weathered gneiss or granite. Most areas have a few boulders and rock outcrops. Reaction is very strongly acid in the A horizon and strongly acid in the B and C horizons.

Pacolet soils occur with Appling, Wedowee, Cecil, and Lockhart soils. They have a redder subsoil than Appling and Wedowee soils. They have a thinner subsoil than Cecil soils. They contain fewer pebbles throughout the profile than Lockhart soils.

Pacolet sandy loam, 2 to 6 percent slopes, eroded (PaB2).--This soil is on ridgetops. It has the profile described as representative for the series.

Included with this soil in mapping are areas of similar soils that have a clay loam surface layer; a few small areas where slopes range from 6 to 10 percent; and small areas of Appling, Wedowee, Cecil, and Lockhart soils. Inclusions make up about 15 percent of this mapping unit.

This Pacolet soil responds to lime and fertilizer. The plow layer is easy to keep in good tilth and can be worked within a medium range of moisture content without clodding.

Most of the acreage is in cultivated crops and pasture. All crops common to the county are grown. Controlling erosion is the major concern in management. Lack of stability and poor compaction properties are limitations in engineering uses. Capability unit IIe-1; woodland group 3o7.

Pacolet sandy loam, 6 to 10 percent slopes, eroded (PaC2).--This soil is on medium-wide to narrow side slopes.

Included with this soil in mapping are small areas of similar soils that have a clay loam surface layer; small areas of Gullied land; and small areas of Wedowee, Cecil, and Lockhart soils. Inclusions make up about 15 percent of this mapping unit.

This Pacolet soil responds to lime and fertilizer. The plow layer is easy to keep in good tilth and can be worked within a medium range of moisture content without clodding.

About half the acreage is in cultivated crops and pasture, and half is in mixed hardwoods and pines. Cotton, grain sorghum, oats, tall fescue, and white clover are the chief crops. Controlling erosion is the major concern in management. Lack of stability and poor compaction properties are limitations in some engineering uses. Capability unit IIIe-1; woodland group 3o7.

Pacolet sandy loam, 10 to 15 percent slopes, eroded (PaD2).--This soil is on narrow ridges and side slopes.

Included with this soil in mapping are small areas of similar soils that have a clay loam surface layer; small areas of Gullied land; and small areas of Wedowee, Cecil, and Lockhart soils. Inclusions make up about 15 percent of this mapping unit.

Some of the acreage of this Pacolet soil was cleared and cultivated, but now part of it is idle and the rest has been planted to pines.

Controlling erosion is the major concern in management. Lack of stability and poor compaction properties are limitations in some engineering uses. Capability unit IVe-1; woodland group 3o7.

Pacolet sandy loam, 15 to 25 percent slopes, eroded (PaE2).--This soil is adjacent to the larger streams and the ridges.

Included with this soil in mapping are small areas of similar soils that have a clay loam surface layer; small areas of Gullied land; and small areas of Wedowee, Cecil, and Lockhart soils. Inclusions make up about 15 percent of this mapping unit.

This Pacolet soil is not suitable for cultivation. Some of the acreage was cleared, but now part of it is idle and the rest has been planted to pines.

Controlling erosion is the major concern in management. Lack of stability and poor compaction properties are limitations in some engineering uses. Capability unit VIe-1; woodland group 3r8.

Pacolet sandy loam 25 to 40 percent slopes, eroded (PaF2).--This soil is adjacent to the medium and large streams. There are a few boulders in some areas.

Included with this soil in mapping are small areas of similar soils that have a loamy sand or sandy clay loam surface layer; a few small areas where slopes range from 15 to 25 percent; and small areas of Wilkes, Lockhart, and Wedowee soils. Inclusions make up about 15 percent of this mapping unit.

This Pacolet soil is not suitable for cultivation. Most of the acreage is hardwood forest. Controlling erosion and reducing soil loss caused by caving gullies are the major concerns in management. Capability unit VIIe-1; woodland group 3r8.

Pacolet clay loam, 2 to 6 percent slopes, severely eroded (PcB3).--This soil is on smooth ridgetops. Its profile is similar to the profile described as representative for the series, but the surface layer is clay loam.

Preserving tilth in the plow layer is difficult. Clods form in the fine-textured surface layer unless the soil is tilled within an ideal range of moisture content.

Included with this soil in mapping are areas of similar soils that have a gravelly sandy loam surface layer; very small areas of Lockhart soils; small areas of Appling, Wedowee, and Cecil soils; and small areas of soils that have a very high content of mica flakes. Inclusions make up about 15 percent of this mapping unit.

Most of the acreage of this Pacolet soil is pine forest. Cotton, grain sorghum, oats, tall fescue, and white clover are the chief crops. Controlling erosion and reducing soil loss are the major concerns in management. Capability unit IIIe-1; woodland group 4c2e.

Pacolet clay loam, 6 to 10 percent slopes, severely eroded (PcC3).--This soil is on medium-wide ridges and side slopes. Its profile is similar to the profile described as representative for the series, but the surface layer is clay loam.

Included with this soil in mapping are small areas of similar soils that have a gravelly sandy loam surface layer; very small areas of Lockhart soils; small areas of Appling, Wedowee, and Cecil soils; and small areas of similar soils that have a very high content of mica flakes. Inclusions make up about 15 percent of this mapping unit.

Desirable tilth in the plow layer of this Pacolet soil is difficult to maintain, and clodding results unless the soil is tilled within an ideal range of moisture content.

Most of the acreage is pine forest. Controlling erosion and reducing soil loss are the major concerns in management. Capability unit IVe-1; woodland group 4c2e.

Pacolet clay loam, 10 to 15 percent slopes, severely eroded (PcD3).--This soil is on narrow ridges and side slopes. Its profile is similar to the profile described as representative for the series, but the surface layer is clay loam.

Included with this soil in mapping are small areas of similar soils that have a gravelly sandy loam surface layer; very small areas of Lockhart soils; small areas of Appling, Wedowee, and Cecil soils; and small areas of similar soils that have a very high content of mica flakes. Inclusions make up about 15 percent of this mapping unit.

Most of the acreage of this Pacolet soil is pine forest. Controlling erosion is the major concern in management. Capability unit VIe-1; woodland group 4c2e.

Pacolet clay loam, 15 to 25 percent slopes, severely eroded (PcE3).--This soil is adjacent to the larger streams and ridges. Its profile is similar to the profile described as representative for the series, but the surface layer is clay loam.

Included with this soil in mapping are a few moderately deep gullies; small areas of similar soils that have a sandy loam surface layer; a few small areas where slopes range from 10 to 15 percent and a few where they are more than 25 percent; and small to medium-size areas of Lockhart and Cecil soils. Inclusions make up about 15 percent of this mapping unit.

Most of the acreage of this Pacolet soil is pine forest. Because of the slopes and the hazard of erosion, it is not practical to disturb this soil. Controlling runoff and erosion are the major concerns in management. Capability unit VIIe-1; woodland group 4c3e.

Pickens Series

The Pickens series consists of somewhat excessively drained soils on uplands. These soils are shallow over rock. They formed in residuum weathered from argillite and sericitic schist. Slopes range from 10 to 35 percent.

In a representative profile, the surface layer is light yellowish-brown slaty silt loam about 7 inches thick. The subsoil is strong-brown slaty silt loam 13 inches thick. It appears as discontinuous pockets over hard slate rock. Depth to bedrock is 8 to 20 inches.

These soils are not cultivated. The organic-matter content is low. Permeability and infiltration are moderate. Available water capacity is low. Most of the acreage is pasture or woodland.

Representative profile of Pickens slaty silt loam, in an area mapped as Goldston-Pickens complex, 6 to 10 percent slopes, 1,000 feet east of County Road No. 39 and 50 feet north of South Carolina Highway No. 9:

A1--0 to 7 inches, light yellowish-brown (10YR 6/4) slaty silt loam; moderate, medium, granular structure; very friable; common medium tree roots; many, platy, micaceous rock fragments 10 to 50 millimeters in size; strongly acid; clear, wavy boundary.

B--7 to 20 inches, strong-brown (7.5YR 5/6) slaty silt loam; about 35 percent yellowish-brown slate fragments; weak, fine, subangular blocky structure in irregular pockets between platy rock fragments; friable; few large tree roots; strongly acid; clear, irregular boundary.

R--20 to 24 inches, light-olive and yellowish-brown platy slate rock; few tree roots and silt loam in cracks of the laminated rock.

Depth to hard platy slate rock is 8 to 20 inches. The A horizon is light yellowish brown, light brown, brown, or grayish brown. The B horizon is discontinuous. It ranges from 3 to 15 inches in thickness and from slaty silt loam to silty clay loam. It is brown, strong brown, yellowish brown, or dark brown. The R layer is hard slate or schist rock. Reaction is strongly acid throughout the profile.

Pickens soils occur in intricate patterns with Goldston, Georgeville, Herndon, Tatum, Nason, and Gills soils. They are shallower over hard rock than those soils.

Pickens slaty silt loam, 10 to 25 percent slopes (PkE).--This soil is on narrow ridges and side slopes. A few rills and shallow gullies have formed.

Included with this soil in mapping are areas of Nason, Herndon, Goldston, and Gills soils. Inclusions make up about 20 percent of this mapping unit.

This Pickens soil is not suitable for cultivation. Most of the acreage is in pasture and low grade hardwoods. Erosion and the high content of slate fragments are the major concerns in management. Capability unit VIe-2; woodland group 4d2.

Pickens slaty silt loam, 25 to 35 percent slopes (PkF).--This soil is on breaks near the larger drainageways. A few rills and shallow gullies have formed.

Included with this soil in mapping are small areas of Nason and Tatum soils, and small to medium-size areas of Goldston soils. Inclusions make up about 20 percent of this mapping unit.

This Pickens soil is not suitable for cultivation. Most of the acreage is in low-grade hardwoods. Erosion is the major concern in management. Capability unit VIIe-2; woodland group 4d3.

Rock Land

Rock land (Ro) consists of areas where rock outcrops, stones, or boulders cover about 50 percent of the surface area. Use of these areas is severely limited by the steep slopes, rock outcrops, and large boulders. Use of machinery is impractical. Some areas are suitable for recreation and wildlife. Capability unit VIIs-2; no woodland classification.

Rutlege Series

The Rutlege series consists of deep, nearly level, very poorly drained soils. These soils formed in marine sediment of sand and loamy sand.

In a representative profile, the surface layer is black loamy sand in the upper 10 inches and very dark grayish-brown loamy sand in the lower 11 inches. The next layer, to a depth of 52 inches, is gray loamy sand. Depth to bedrock is more than 20 feet.

Infiltration and permeability are rapid, and available water capacity is low. Organic-matter content is high. The natural vegetation is mixed hardwoods and an understory of grasses and sedges.

Representative profile of Rutlege loamy sand, 0.6 mile north of the junction of South Carolina Highway No. 903 and South Carolina Highway No. 265, in a low basin area formerly cultivated:

Ap--0 to 10 inches, black (10YR 2/1) loamy sand; structureless; loose and soft moist; many fine roots; few light-colored sand grains; very strongly acid; clear, wavy boundary.

A1--10 to 21 inches, very dark grayish-brown (10YR 3/2) loamy sand; weak, fine, granular structure; loose moist; few fine roots mostly in upper part; very strongly acid; diffuse, wavy boundary.

C1g--21 to 38 inches, gray (10YR 6/1) loamy sand; few, fine to coarse, yellowish-brown (10YR 5/4) mottles; structureless; loose; water table at 28 inches; very strongly acid; gradual, wavy boundary.

C2g--38 to 52 inches, gray (N 6/0) loamy sand; few, fine to coarse, yellowish-brown (10YR 5/4) and brown (10YR 5/3) mottles; structureless; loose; few lumps of sandy loam material; very strongly acid.

The A horizon is very dark grayish brown, very dark gray, or black and ranges from 10 to 24 inches in thickness. The Cg horizon is gray sand or loamy sand that in places is mottled with white, yellow, and brown. It ranges from 20 to 40 inches in thickness. The underlying material is mainly unconsolidated sand. There is little evidence of clay. Reaction is very strongly acid throughout the profile.

Rutlege soils occur with Blanton, Wagram, and Eustis soils. They are more poorly drained and have a darker colored surface layer than those soils.

Rutlege loamy sand (Ru).--This nearly level soil is in depressions and at the heads of small streams and drainageways. It has the profile described as representative for the series.

Included with this soil in mapping are areas of soils that have a very dark brown or black surface layer less than 10 inches thick; areas of a wet soil that has variable colors and textures throughout the profile and lower layers of gray sandy loam; a few areas of soils that have a sand surface layer; and a very small areas of a soil that contains a firm organic pan. Inclusions make up about 40 percent of this mapping unit.

Unless drained, this Rutlege soil is not suitable for cultivation. Draining this soil and maintaining the drainage system are the major concerns in management. Most areas are woodland. Most can be developed as habitat for wildlife. Capability unit Vw-2; woodland group 2w3.

Starr Series

The Starr series consists of deep, well-drained, nearly level soils that occur as small areas at the base of the steeper slopes and along the larger streams. The acreage of Starr soils in this county is very small.

In a representative profile, the surface layer is dark-brown loam about 6 inches thick. The subsoil is dark-brown loam about 33 inches thick. Below this is grayish-brown silty clay loam. Depth to bedrock is more than 15 feet.

These soils are suitable for cultivation. They have moderate infiltration, moderately rapid permeability, and high available moisture capacity. The organic-matter content is medium.

Representative profile of Starr fine sandy loam in an area of Starr soils, in a cultivated field along the Catawba River, about 1 1/2 miles west of Van Wyck near Ashes Ferry:

Ap--0 to 6 inches, dark-brown (10YR 3/3) loam; moderate, fine and medium, granular structure; very friable; many fine roots; many fine and medium holes; few fine and medium pores; few fine mica flakes; medium acid; clear, wavy boundary.

B1--6 to 12 inches, dark-brown (7.5YR 4/2) loam; weak, fine and medium, subangular blocky structure; very friable; many fine roots; many fine holes; few fine pores; few fine mica flakes; medium acid; gradual, wavy boundary.

B21--12 to 30 inches, dark-brown (10YR 4/3) loam; weak, medium and coarse, subangular blocky structure; very friable; few medium and fine roots and root holes; few fine pores; common fine mica flakes; medium acid; gradual, wavy boundary.

B22--30 to 39 inches, dark-brown (10YR 4/3) loam; weak, coarse, subangular blocky structure; very friable, loose; few fine roots; few fine holes; few fine mica flakes; medium acid; gradual, wavy boundary.

C1--39 to 50 inches, grayish-brown (10YR 5/2) silty clay loam; common, fine, distinct, dark yellowish-brown mottles; structureless; friable; few fine mica flakes; strongly acid; clear, wavy boundary.

C2--50 to 72 inches, grayish-brown (10YR 5/2) silty clay loam; common, fine, distinct, yellowish-brown mottles; structureless; friable but firm in place; few rounded quartz pebbles 5 to 10 millimeters in size; few dark-brown concretions 2 to 5 millimeters in size; few fine mica flakes; medium acid.

The A horizon is sandy loam, loam, silt loam, clay loam, or silty clay loam that is dark brown, dark grayish brown, dusky red, or dark red. The B horizon is loam, sandy clay loam, clay loam, or silty clay loam. It ranges from firm to very friable. Rounded or angular stone lines occur in places. Thickness of the solum ranges from 30 inches to 60 inches. Depth to hard rock is commonly more than 15 feet. Reaction is medium acid or slightly acid in the A horizon and strongly acid to slightly acid in the B and C horizons. In some places these soils are browner than is defined in the range for the series, but this difference does not alter their usefulness and behavior.

Starr soils occur with Davidson, Cecil, Chewacla, and Georgeville soils. They have more weakly defined layers than Davidson, Cecil, and Georgeville soils. They do not have the gray mottles within a depth of 20 inches that are typical of Chewacla soils.

Starr soils (Sr).--These nearly level soils are on toe slopes and flood plains along the larger streams. Their profile is the one described as representative for the series.

Included with these soils in mapping are very small areas of Colfax and Worsham soils; and very small areas of Cecil, Davidson, Georgeville, Mecklenburg, and other soils on which 5 to 10 inches of loam or sandy loam soil material has been deposited. Inclusions make up about 5 percent of this mapping unit.

These Starr soils are suited to corn, grain sorghum, oats, soybeans, and some truck crops. Flooding and overwash from the adjoining uplands are the major concerns in management. Capability unit IIw-2; woodland group 1o7.

Tatum Series

The Tatum series consists of well-drained, strongly sloping to moderately steep soils on uplands. These soils are moderately deep over weathered rock.

In a representative profile, the surface layer is light-brown loam about 3 inches thick. The subsoil is about 27 inches thick. It is reddish-brown sandy clay loam in the upper part, red clay in the middle part, and red sandy clay loam in the lower part. Depth to bedrock is 4 to 10 feet.

Tatum soils have moderate infiltration where the surface layer is loam and moderately slow infiltration where it is silty clay loam. Permeability is moderate, and runoff is rapid. Available water capacity is medium. The organic-matter content is low. These soils are not well suited to cultivated crops because of the slope and the hazard of erosion. Woodland and pasture are the main uses.

Representative profile of Tatum loam, 15 to 25 percent slopes, eroded, in an area of hardwood trees about 50 yards west of County Road No. 55, 2.4 miles north of Van Wyck, 0.8 mile south of Macedonia Church:

O1--1 inch to 0, leaves and twigs.

A1--0 to 3 inches, light-brown (7.5YR 6/4) loam; weak, fine, granular structure; loose; many fine and medium tree roots; few pebbles; very strongly acid; clear, smooth boundary.

B21t--3 to 7 inches, reddish-brown (5YR 5/4) sandy clay loam; weak, medium, subangular blocky structure; friable; patchy faint clay films on peds; common medium tree roots; very strongly acid; clear, smooth boundary.

B22t--7 to 20 inches, red (2.5YR 5/6) clay; moderate, medium, subangular blocky structure; friable; complete distinct clay films on ped faces; few large tree roots; few fine holes; strongly acid; gradual, wavy boundary.

B3t--20 to 30 inches, red (2.5YR 5/6) sandy clay loam; common, coarse, distinct, yellowish-red (5YR 4/6) and common, fine, prominent, pinkish-white mottles; weak, coarse, subangular blocky structure; very friable; patchy faint clay films on some ped faces; few medium and large roots; few medium holes; common fine mica flakes; very strongly acid; gradual, wavy boundary.

C--30 to 48 inches, reddish-yellow and light-brown, weathered rock that crushes to silt loam with

many soft sheets of weathered schist rock; many fine mica flakes; structureless; very friable; very strongly acid.

The A horizon is loam or silty clay loam that is dark gray, dark brown, or light brown. It ranges from 3 to 8 inches in thickness. The B horizon is silty clay loam, sandy clay loam, silty clay, or clay and is 20 to 35 inches thick. The B2t horizon is friable to firm. In most places the B3t and C horizons contain common to many fine mica flakes. The C horizon ranges from very fine sandy loam to silt loam. White angular quartz pebbles and rocks ranging from few to common are on the surface in many areas. Reaction is strongly acid to very strongly acid throughout the profile.

Tatum soils occur with Nason, Herndon, Georgeville, Goldston, and Pickens soils. They have a redder Bt horizon than Nason and Herndon soils. They have a thinner B horizon than Georgeville soils. They have fewer coarse fragments throughout the profile than Goldston and Pickens soils.

Tatum loam, 10 to 15 percent slopes, eroded (TaD2).--This soil is on narrow ridges and side slopes.

Included with this soil in mapping are a few, small, severely eroded, gullied areas where the surface layer is silty clay loam; a few areas where the surface layer is sandy loam; small areas of Georgeville, Herndon, Nason, Goldston, and Pickens soils; and a few small areas where slopes are less than 10 percent and a few where they are more than 15 percent. Inclusions represent about 15 percent of this mapping unit.

This Tatum soil is not well suited to cultivated crops. Under good management, pasture grasses can be grown. Much of the acreage is in cutover hardwoods. Some areas have been cleared and planted to loblolly pine. Erosion is the major concern in management. Capability unit IVe-1; woodland group 4o1.

Tatum loam, 15 to 25 percent slopes, eroded (TaE2).--This soil is on narrow ridges and breaks to drainageways. It has the profile described as representative for the series.

Included with this soil in mapping are a few, small, severely eroded, gullied areas where the surface layer is silty clay loam; a few areas where the surface layer is sandy loam; small areas of Georgeville, Herndon, Nason, and Goldston soils; and a few small areas where slopes are less than 15 percent and a few where they are more than 25 percent. Inclusions make up less than 15 percent of this mapping unit.

This Tatum soil is not suitable for cultivation. Most of the acreage is forest, but a few small areas are pasture. Capability unit VIe-1; woodland group 4r2.

Tatum silty clay loam, 10 to 25 percent slopes, severely eroded (TcE3).--This soil is on narrow ridges and side slopes. Its profile is similar to the profile described as representative for the series, but the surface layer is silty clay loam. Shallow gullies are common and a few deep gullies have formed. In some areas between the gullies and galled spots, this soil is only slightly to moderately eroded.

Included with this soil in mapping are areas of soils that have a fine sandy loam, silt loam, or loam surface layer; small areas of Georgeville, Herndon, Nason, Goldston, and Pickens soils; and a few small areas where slopes are less than 10 percent. Inclusions make up about 15 percent of this mapping unit.

This Tatum soil is not suitable for cultivation. Most of the acreage is in cutover hardwood. Some areas have been planted to loblolly pine. Capability unit VIIe-1; woodland group 4c3e.

Vaucluse Series

The Vaucluse series consists of moderately deep to deep, well-drained soils. These soils formed in marine sediment. Slopes range from 2 to 15 percent.

In a representative profile, the surface layer is dark grayish-brown loamy sand 3 inches thick over a subsurface layer of yellowish-brown loamy sand 8 inches thick. The subsoil is 5 inches of hard, compact, brittle, yellowish-brown sandy clay loam over a yellowish-red, very hard, brittle sandy clay loam fragipan that extends to a depth of about 32 inches. Below this is reddish-yellow sandy loam. Depth to bedrock is more than 15 feet.

Surface drainage is moderate to excessive, but internal drainage is moderate to slow. Infiltration is moderately rapid. Permeability is moderately slow, and available water capacity is low. The organic-matter content is low. The root zone is shallow to moderately deep over the fragipan. The original vegetation was longleaf pine, loblolly pine, scrub oak, and an understory of grasses. On the shallower soils, windthrow of pine trees is common.

The Vaucluse soils in this county are mapped only with Blaney soils.

Representative profile of Vaucluse loamy sand in an area of Vaucluse and Blaney loamy sands, 6 to 10 percent slopes, in a wooded area 20 feet northwest of County Road No. 34, 2 miles south of South Carolina Highway No. 903 and 14 miles southeast of Lancaster:

A1--0 to 3 inches, dark grayish-brown (10YR 4/2) loamy sand; weak, fine, granular structure; loose; many fine and medium roots; few fine holes and pores; few rounded quartz pebbles 5 to 30 millimeters in size; few coarse quartz grains; strongly acid; clear, wavy boundary.

A2--3 to 11 inches, yellowish-brown (10YR 5/4) loamy sand; weak, fine, granular structure; loose; abundant fine and few medium roots; few fine holes; few, red, soft, rocklike particles 5 to 40 millimeters in size; strongly acid; clear, wavy boundary.

B2t--11 to 16 inches, yellowish-brown (10YR 5/6) sandy clay loam; weak, fine, subangular blocky structure; friable, compact in place, hard and brittle; patchy faint clay films on peds or in pores; fine holes and pores; few rounded quartz pebbles 5 to 25 millimeters in size; very strongly acid; gradual, wavy boundary.

Bx--16 to 32 inches, yellowish-red (5YR 5/6) sandy clay loam; few, medium and coarse, distinct, brownish-yellow (10YR 6/6) mottles; firm in place, very hard and brittle; patchy faint clay films on peds and in pores; fine and medium roots; few fine holes and pores; few krotovinas in upper part; few very fine mica flakes; very strongly acid; gradual, wavy boundary.

B3--32 to 53 inches, reddish-yellow (5YR 6/8) sandy loam; structureless; very friable, slightly hard and slightly brittle; few coarse quartz grains; strongly acid; diffuse, wavy boundary.

C1--53 to 72 inches, varicolored, pink, brown, yellowish-red, light-red, and specks of white, unconsolidated strata of sands, sandy loams, and loamy fine sands; very strongly acid.

The A horizon is yellowish brown, brown, or dark grayish brown. The B1, where present, ranges from reddish yellow to yellowish red. The Bt horizon is yellowish brown to strong brown. The Bx horizon is yellowish-brown, strong-brown, or red sandy clay loam, sandy loam, clay loam, or sandy clay. Round pebbles are common on the surface and throughout the solum in a few areas of this soil. The C horizon is sand, loamy sand, and sandy loam mottled with light red, pink, or gray. Reaction is strongly acid in the A horizon, very strongly acid in the Bt and Bx horizons, and very strongly acid or strongly acid in the B3 and C horizons.

In some profiles the Bt horizon is yellower than is defined in the range for the series, but this difference does not alter the use or behavior of the soil.

These soils occur with Wagram, Blanton, Blaney, and Eustis soils, but differ in having a surface layer less than 20 inches thick.

Vaucluse and Blaney loamy sands, 2 to 6 percent slopes (VbB).--Some areas of this mapping unit are Vaucluse soil, some are Blaney soil, and some contain both soils and less extensive soils.

Included with these soils in mapping are areas of Wagram, Eustis, and Wickham soils. Inclusions make up about 15 percent of this mapping unit.

The plow layer of Vaucluse and Blaney soils is easy to keep in good tilth. Part of the acreage is cropland, part is pasture, part is woodland, and the rest is idle. Low fertility, low organic-matter content, and the restricted root zone are the main concerns in management. Capability unit IIe-5; Vaucluse soil in woodland group 3o1, Blaney soil in group 4s2.

Vaucluse and Blaney loamy sands, 6 to 10 percent slopes (VbC).--Some areas of this mapping unit are Vaucluse soil, some are Blaney soil, and some contain both soils and less extensive soils.

The Vaucluse soil has the profile described as representative for the Vaucluse series. The Blaney soil has the profile described under the heading "Blaney Series."

Included with these soils in mapping are areas of Wagram, Eustis, and Wickham soils. Inclusions make up about 15 percent of this mapping unit.

The plow layer of Vaucluse and Blaney soils is easy to keep in good tilth. Part of the acreage is cropland, part is pasture, part is woodland, and the rest is idle. Grain sorghum and oats are the chief crops. Low fertility, a low organic-matter content, and the restricted root zone are the major concerns in management. Capability unit IIIe-4; Vaucluse soil in woodland group 3o1, Blaney soil in group 4s2.

Vaucluse and Blaney loamy sands, 10 to 15 percent slopes (VbD).--Some areas of this mapping unit are Vaucluse soil, some are Blaney soil, and some contain both soils and less extensive soils.

Included with these soils in mapping are areas of Wagram, Eustis, and Wickham soils. Inclusions make up about 15 percent of this mapping unit.

The plow layer of Vaucluse and Blaney soils is easy to keep in good tilth. Part of the acreage is cropland, part is pasture, part is woodland, and the rest is idle. Low fertility and a low organic-matter content are concerns in management. Capability unit IVe-4; Vaucluse soil in woodland group 3o1, Blaney soil in group 4s2.

Wagram Series

The Wagram series consists of deep, well-drained soils on broad ridgetops and side slopes. These soils formed in marine sediment of unconsolidated sands and clays. Slopes range from 2 to 15 percent.

In a representative profile, the surface layer is light olive-brown sand about 8 inches thick over a light yellowish-brown sand subsurface layer about 17 inches thick. The subsoil is light olive-brown sandy loam in the upper 9 inches, yellowish-brown sandy clay loam in the next 12 inches, and strong-brown sandy clay loam that has gray and red mottles in the lower 28 inches. Depth to bedrock is 15 to 40 feet.

Wagram soils are important for farming. If well managed, they are suitable for cultivation. Infiltration is rapid. Permeability is moderately rapid, and available water capacity is medium. The organic-matter content is low.

Representative profile of Wagram sand, 2 to 6 percent slopes, in a stand of young pines at the west edge of Heath Springs, 150 feet southeast of South Carolina Highway No. 522:

Ap--0 to 8 inches, light olive-brown (2.5Y 5/4) sand; weak, medium, granular structure; loose; many fine roots; many fine pores; strongly acid; clear, wavy boundary.

A2--8 to 25 inches, light yellowish-brown (2.5Y 6/4) sand; weak, fine, granular structure; loose; few fine roots; few fine pores; strongly acid; gradual boundary.

B1t--25 to 34 inches, light olive-brown (2.5Y 5/6) sandy loam; weak, medium, subangular blocky structure; friable; few fine roots; strongly acid; gradual boundary.

B2t--34 to 46 inches, yellowish-brown (10YR 5/4) sandy clay loam; weak, medium, subangular blocky structure; friable, sticky; fine roots; strongly acid; gradual boundary.

B3--46 to 74 inches, strong-brown (7.5YR 5/6) sandy clay loam; common, prominent, light-gray and weak-red mottles; very friable, slightly compact when dry; strongly acid.

The A horizon is 20 to 40 inches thick and is light olive brown, brown, or dark grayish brown. The A2 horizon is light yellowish brown to pale brown. These soils commonly have a discontinuous, brittle horizon at the contact between the A and the B horizons. The Bt horizon is light olive-brown, yellowish-brown, or strong-brown sandy loam to sandy clay loam that ranges from 40 to more than 60 inches in thickness. Reaction is strongly acid throughout the profile.

Wagram soils occur with Durham, Eustis, Blaney, and Vaucluse soils. They have a thicker surface layer than Durham soils and a heavier textured subsoil than Eustis soils. They do not have a fragipan, which is typical of Blaney and Vaucluse soils.

Wagram sand, 2 to 6 percent slopes (WaB).--This soil is on broad ridges and side slopes. It has the profile described as representative for the series.

Included with this soil in mapping are areas of Eustis and Blaney soils; areas where the sandy surface layer is less than 20 inches thick; a few small areas where slopes are more than 6 percent and a few where they are less than 2 percent; and a few areas where the surface layer is loamy sand. Inclusions make up about 10 percent of this mapping unit.

This Wagram soil can be cultivated throughout a wide range of moisture content without clodding. Droughtiness affects some shallow-rooted plants because the sandy surface layer is 25 inches thick. Coastal bermudagrass (pl. I, top), cotton, corn, grain sorghum, oats, soybeans, and various truck crops are grown.

The low organic-matter content and low fertility are the major concerns in management. Soil blowing and water erosion are slight hazards. Capability unit IIs-1; woodland group 3s2.

Wagram sand, 6 to 10 percent slopes (WaC).--This soil is on ridges and side slopes.

Included with this soil in mapping are small areas of Blaney soils along slope breaks; small areas of Eustis and Vaucluse soils; a few areas where slopes are more than 10 percent and a few where they are less than 6 percent; and a few small areas where the surface layer is loamy sand. Inclusions make up about 15 percent of this mapping unit.

This Wagram soil can be cultivated throughout a wide range of moisture content without clodding. Coastal bermudagrass and other crops common to the county are grown.

Most of the acreage has been cultivated, but is now woodland and pasture. Erosion, the low organic-matter content, and low fertility are the major concerns. Capability unit IIIe-5; woodland group 3s2.

Wagram sand, 10 to 15 percent slopes (WaD).--This soil is on ridges.

Included with this soil in mapping are areas of Blaney soils along the breaks; many small areas of soils that are intricately associated with soils of the Piedmont Plateau and have a yellowish-brown silty clay to clay loam subsoil; small areas of Eustis soils; and a few areas where slopes are more than 15 percent and a few where they are less than 10 percent. Inclusions make up about 50 percent of this mapping unit.

This Wagram soil is not well suited to cultivated crops. Most of the acreage is woodland. A small part is pasture. Erosion, the low organic-matter content, and low fertility are the major concerns in management. Capability unit IVe-5; woodland group 3s2.

Wedowee Series

The Wedowee series consists of well-drained soils that are moderately deep over weathered rock material. These soils formed in residuum derived from acid crystalline rocks, such as granite and gneiss, and from mixed, acid and basic rocks. Slopes range from 10 to 26 percent.

In a representative profile, the surface layer is light brownish-gray sandy loam about 4 inches thick. The upper 4 inches of the subsoil is fine sandy loam. The next 10 inches is reddish-yellow clay loam. The lower 12 inches is reddish-yellow fine sandy loam. Below this is very pale brown, weathered rock material. The depth to bedrock ranges from 5 to 20 feet.

Wedowee soils are not suitable for cultivation. Infiltration and permeability are moderate, and the available water capacity is medium. The organic-matter content is low.

Representative profile of Wedowee sandy loam, 10 to 25 percent slopes, eroded, in a wooded area about 1 mile south of New Hope Church, 25 feet east of County Road No. 19, 8 miles south of Lancaster:

O1--1 inch to 0, partially decomposed pine and oak litter.

A--0 to 4 inches, light brownish-gray (10YR 6/2) sandy loam; moderate, medium, granular structure; very friable; many fine and medium tree roots; few fine pores; strongly acid; abrupt, smooth boundary.

B1--4 to 8 inches, very pale brown (10YR 7/4) fine sandy loam; weak, fine, subangular blocky structure; very friable; few fine and medium tree roots; strongly acid; clear, wavy boundary.

A good stand of Coastal bermudagrass on Wagram sand, 2 to 6 percent slopes.

Crimson clover, early in spring, on Davidson clay loam,
2 to 6 percent slopes.

Soybeans on Wagram sand, 2 to 6
This soil is in capability

PLATE II

Pasture of fescue and crimson clover.

Pasture of Coastal bermudagrass on Wagram sand, 6 to 10 percent slopes. The pond covers an area of Rutlege loamy sand. The wagram soil is in capability unit IIIe-5. The Rutlege soil is in capability unit Vw-2.

B2t--8 to 18 inches, reddish-yellow (7.5YR 6/6) clay loam; moderate, coarse, subangular blocky structure; complete faint clay films; friable; few medium-size tree roots; very strongly acid; clear, wavy boundary.

B3--18 to 30 inches, reddish-yellow (7.5YR 6/6) fine sandy loam; common, medium, faint, brownish-yellow (10YR 6/6) mottles; weak, coarse, subangular blocky structure; patchy faint clay films in vertical cracks of highly weathered parent material; friable; few fine tree roots in vertical cracks; strongly acid; diffuse, irregular boundary.

C--30 to 54 inches, very pale brown (10YR 7/4), weathered rock material that crushes to fine sandy loam; common, fine, faint, brownish-yellow mottles; structureless; firm, non-sticky; strongly acid.

The A horizon is 3 to 7 inches thick. The B1 horizon, where present, is very pale brown, pale brown, light yellowish-brown, or yellowish-brown fine sandy loam or sandy clay loam 2 to 5 inches thick. The B2t horizon is brownish-yellow, yellowish-brown, or yellowish-red clay loam or clay 10 to 20 inches thick. The B3 horizon is reddish-yellow, yellowish-brown, or brown fine sandy loam or sandy clay loam 6 to 15 inches thick. In some areas stones occur throughout the profile, and in other areas rock outcrops are on the surface. Reaction is strongly acid in the A horizon, very strongly acid or strongly acid in the B horizon, and strongly acid in the C horizon.

Wedowee soils occur with Helena, Appling, Lockhart, Pacolet, and Wilkes soils. They have better drainage than Helena soils, but do not have the plastic subsoil that is characteristic of those soils. Their Bt horizon is thinner than that of Appling soils. They have a yellower subsoil than Pacolet soils. They contain fewer pebbles than Lockhart soils. They have a thicker Bt horizon than Wilkes soils.

Wedowee sandy loam, 10 to 25 percent slopes, eroded (WdE2).--This soil is on narrow to medium ridges and side slopes. It has the profile described as representative for the series.

Included with this soil in mapping are small areas of Wilkes and Lockhart soils; areas of a soil, similar to this Wedowee soil, that has a solum more than 40 inches thick and a subsoil less than 35 percent clay; and a few small areas around the heads of gullies where the surface layer is yellowish-brown to yellowish-red sandy clay loam. Inclusions of shallow gullies and a few deep gullies make up about 10 percent of this mapping unit. Total inclusions make up about 15 percent.

This Wedowee soil is not suitable for cultivation. A large part of the acreage is wooded. A small part is permanent pasture. Control of runoff and erosion are the major concerns in management. Capability unit VIe-1; woodland group 3r8.

Wehadkee Series

The Wehadkee series consists of deep, poorly drained, nearly level soils in small areas near the confluence of large streams and in very narrow, elongated strips on first bottoms. These soils formed in young, general alluvium washed from soils underlain by granite, gneiss, schist, argillite, and basic rock. The natural vegetation consists of water oak, ash, cottonwood, gum, birch, and an undergrowth of reeds, briers, and grasses.

In a representative profile, the surface layer is brown silty clay loam about 7 inches thick. It is underlain by dark grayish-brown silty clay loam. The next layer is dark-gray sandy clay loam mottled with gray and brown. Depth to bedrock is 5 to 20 feet.

These soils are suited to hardwood trees. The organic-matter content is high. Surface drainage is slow, and permeability is moderate. Infiltration is slow, and the available water capacity is high.

Representative profile of Wedhadkee silty clay loam in an area of Wehadkee and Chewacla soils on a first bottom, 1,800 feet east of Sugar Creek, 2 miles south of South Carolina Highway No. 160, 1,400 feet west of County Road No. 157, and 18 miles north of Lancaster:

O1--1 inch to 0, mostly decaying hardwood leaves and grass.

A1--0 to 7 inches, brown (10YR 4/3) silty clay loam; strong, coarse, granular structure; very friable; loose; many fine and few medium roots; few fine holes; few medium holes and root channels; strongly acid; gradual, wavy boundary.

C1g--7 to 15 inches, dark grayish-brown (10YR 4/2) silty clay loam; few, fine, prominent, reddish-gray mottles; weak, coarse, subangular blocky structure; very friable, slightly sticky; abundant fine roots; water table at 15 inches; slightly acid; gradual, wavy boundary.

C2g--15 to 50 inches, dark-gray (N 4/0) sandy clay loam; common, fine and medium, distinct, yellowish-brown mottles; weak, coarse, subangular blocky structure; very friable, slightly sticky, slightly plastic; slightly acid; diffuse, wavy boundary.

C3g--50 to 55 inches, gray (N 5/0) silty clay loam and dark-brown (10YR 4/3) silt loam occurring in alternate streaks and lenses; structureless; medium acid.

The A horizon is loam, silt loam, or silty clay loam. It is grayish brown, brown, or dark grayish brown and is commonly mottled with dark gray to gray. It ranges from 5 to 12 inches in thickness. The C horizon is dark grayish-brown, dark-gray, or gray loam, silty clay loam, or sandy clay loam. Fine mica flakes range from common to many in one or more layers. Reaction is strongly acid or medium acid in the A horizon and medium acid or slightly acid in the C horizon.

Wehadkee soils are on flood plains in association with Chewacla and Congaree soils. They are more poorly drained, grayer, and more mottled than those soils.

Wehadkee and Chewacla soils (We).--These nearly level soils are on the flood plains of creeks and rivers in the county. They are subject to stream overflow at least once every year. Some areas are Wehadkee soil, some are Chewacla soil, and some contain both soils and less extensive soils.

The Wehadkee soil has the profile described as representative for the Wehadkee series.

Included with these soils in mapping are long, narrow areas of Congaree soil; small areas where the water table is usually at the surface; and very small pockets near the upland side of the bottom land where the subsoil is gray, plastic clay. Inclusions make up about 20 percent of this mapping unit.

If drained, these Wehadkee and Chewacla soils are suitable for pasture or cultivation. Where internal drainage is slow, an open ditch drainage system is needed. Most of the acreage is wooded. Only the better drained areas are used for pasture and cultivated crops.

Controlling flooding, lowering the high water table, and maintaining drainage ditches are the major concerns in management. Capability unit IVw-1; Wehadkee soil in woodland group 1w9, Chewacla soil in group 1w8.

Wickham Series

The Wickham series consists of deep, well-drained soils on stream terraces. These soils formed in alluvium washed from soils that formed in material weathered from acid crystalline rocks, such as granite, gneiss, and schist, and some basic rocks. Slopes range from 2 to 10 percent.

In a representative profile, the surface layer is brown sandy loam about 5 inches thick. The subsoil is mainly yellowish-red and red sandy clay loam to a depth of 32 inches. The lower 10 inches of the subsoil and the next layer, to a depth of 55 inches, are red coarse sandy loam. These soils generally have a shallow sandy clay loam or sandy loam transition horizon that contains water-rounded pebbles. Depth to bedrock is more than 15 feet.

Permeability is moderate. The available water capacity is medium. The organic-matter content is low. Infiltration is moderately slow where the surface layer is sandy clay loam and moderate where it is sandy loam.

Wickham soils are suitable for cultivation and respond to good management. Most of the acreage is cleared and cultivated.

Representative profile of Wickham sandy loam, 2 to 6 percent slopes, eroded, in a cultivated field 900 feet northwest of Lynches River, 1.2 miles northeast of the junction of County Roads Nos. 123 and 99, 20 miles southeast of Lancaster:

Ap--0 to 5 inches, brown (7.5YR 5/4) sandy loam; weak, medium, granular structure; very friable; common fine soybean and grass roots; few rounded quartz pebbles and slate fragments; few rounded stones 2 to 5 inches in diameter; medium acid; clear, smooth boundary.

B21t--5 to 10 inches, yellowish-red (5YR 4/6) sandy clay loam; moderate, medium, subangular blocky structure; friable, slightly sticky; complete distinct clay films on peds; strongly acid; clear, wavy boundary.

B22t--10 to 32 inches, red (2.5YR 4/6) sandy clay loam; many, coarse, prominent, strong-brown (7.5YR 5/6) mottles; weak, coarse, subangular blocky structure; friable, slightly sticky, slightly brittle; patchy faint clay films; common, coarse, rounded sand grains; strongly acid; gradual, wavy boundary.

B3--32 to 42 inches, red (2.5YR 5/6) coarse sandy loam; few, medium, prominent, strong-brown mottles; structureless; friable, slightly sticky; strongly acid; gradual, wavy boundary.

C--42 to 55 inches, red (2.5YR 5/6) coarse sandy loam; structureless; very friable; strongly acid.

The Ap horizon ranges from brown sandy loam to reddish-brown or yellowish-red sandy clay loam. The B horizon is red, reddish brown, or yellowish red and ranges from 30 to 50 inches in thickness. It is sandy clay loam, sandy clay, loam, sandy loam, or clay loam. The upper 20 inches of the Bt horizon is 18 to 35 percent clay. In places, this soil formed over argillitic material. Rounded pebbles range from few to common, but there are no consistent or continuous stone lines. Consistence ranges from firm to friable. Reaction is medium acid in the A horizon and strongly acid in the B and C horizons.

Wickham soils occur with Davidson, Appling, Masada, Cecil, and Altavista soils. They have a coarser textured subsoil than Davidson, Appling, and Cecil soils. They have a redder subsoil than Masada and Altavista soils. They are intermediate in color between Davidson and Altavista soils.

Wickham sandy loam, 2 to 6 percent slopes, eroded (WhB2).--This soil is on stream terraces. It has the profile described as representative for the series. Rills and medium-size galled areas are common.

Included with this soil in mapping are a few small areas where slopes range from 6 to 10 percent; a few small areas of a soil, similar to this Wickham soil, that has a dark-red subsoil; and a few small areas of Altavista soils. Inclusions make up about 10 percent of this mapping unit.

Keeping this Wickham soil in good tilth is difficult, especially in galled areas. Poor tilth impedes seed germination, and uniform stands of crops are difficult to obtain.

This soil is used for cultivated crops and pasture. It responds well to management. All crops common to the county are grown. Erosion is the major concern in management. Capability unit IIe-1; woodland group 3o7.

Wickham sandy loam, 6 to 10 percent slopes, eroded (WhC2).--This soil is on stream terraces.

Included with this soil in mapping are a few small areas of a soil, similar to this Wickham soil,

that has a dark-red subsoil; and areas of Altavista soils. Inclusions make up about 8 percent of this mapping unit.

Some of the acreage of this Wickham soil is cultivated, and some is pastured. Crops respond to fertilization and good management. Cotton, grain sorghum, oats, tall fescue, and white clover are the chief crops. Erosion is the major concern in management. Capability unit IIIe-1; woodland group 3o7.

Wickham sandy clay loam, 6 to 10 percent slopes, severely eroded (WkC3).--This soil is on stream terraces. It has a profile similar to the profile described as representative for the series, but its surface layer is sandy clay loam. Many rills and some shallow gullies have formed.

Included with this soil in mapping are a few small areas where slopes range from 2 to 6 percent; a few small areas of a soil, similar to this Wickham soil, that has a dark-red subsoil; and a few small areas of Altavista soils. Inclusions make up about 6 percent of this mapping unit.

Keeping this Wickham soil in good tilth is difficult. Poor tilth impedes seed germination, and uniform stands of crops are difficult to obtain. Stands of crops are also difficult to establish. Tillage extends into the subsoil in most areas.

Part of the acreage is woodland, part is pasture, and the rest is idle. Erosion is the major concern in management. Capability unit IVe-1; woodland group 4c2e.

Wilkes Series

The Wilkes series consists of well-drained, upland soils that have a thin subsoil, are shallow over weathered rock, and commonly have outcrops of rocks and boulders. These soils formed in residuum derived from mixed acid and basic rocks, such as gabbro, hornblende, chlorite, and biotite. Slopes range from 6 to 35 percent. Wilkes soils are widely distributed throughout the county.

In a representative profile, the surface layer is brown sandy loam about 3 inches thick. The subsoil is yellowish-brown clay loam about 10 inches thick. Depth to bedrock is 20 to 48 inches.

Infiltration is moderate, and permeability is moderately slow. The available water capacity is low to medium, and runoff is rapid. The organic-matter content is low. Most of the acreage is covered with low-grade hardwoods, such as hickory and redcedar. A few of the less sloping areas are pasture.

Representative profile of Wilkes sandy loam, 6 to 10 percent slopes, eroded, 20 feet west of county road, 0.3 mile north of Rocky Creek, about 1 mile south of Lancaster:

O1--1 inch to 0, decaying grass, pine needles, and hardwood leaves.

Ap--0 to 3 inches, brown (10YR 5/3) sandy loam; moderate, medium, granular structure; very friable; many fine and medium roots; abundant fine and medium holes; few fine pores; few angular quartz pebbles 3 to 20 millimeters in size; strongly acid; clear, wavy boundary.

Bt--3 to 13 inches, yellowish-brown (10YR 5/6) clay loam; few, fine and medium, distinct, yellowish-red mottles; weak, medium, subangular blocky structure; friable, slightly hard and brittle; complete distinct clay films along ped faces; many fine roots concentrated along ped faces; common fine mica flakes; medium acid; gradual, wavy boundary.

C--13 to 26 inches, yellowish-brown (10YR 5/4), weathered rock that crushes to few, fine, distinct, very dark grayish-brown mottles; structureless; few fine roots along cracks; common, fine, dark- and light-colored mica flakes; slightly acid; gradual boundary to compact, deeply weathered basic and acidic rock materials.

R--26 inches, hard bedrock.

The A horizon is brown, pale brown, light yellowish brown, or yellowish brown and is 3 to 10 inches thick. The Bt horizon ranges from 2 to 10 inches in thickness. It is yellowish-brown, strong-brown, dark-brown, or brown sandy clay loam or clay loam. It ranges from firm and plastic to very friable and nonplastic. Fragments, pebbles, and rock are common in the A and Bt horizons. Rock, too firm to be cut with a hand auger, occurs between depths of 20 and 48 inches. Reaction is strongly acid or medium acid in the A horizon and medium acid or neutral in the Bt and C horizons.

Wilkes soils occur with Davidson, Cecil, Mecklenburg, Iredell, Enon, Lockhart, and Pacolet soils. They have a thinner subsoil than those soils and are shallower over bedrock.

Wilkes sandy loam, 6 to 10 percent slopes, eroded (W1C2).--This soil is on narrow ridges and side slopes. It has the profile described as representative for the series. Rills are common, and a few small galled areas and shallow gullies have formed.

Included with this soil in mapping are a few small areas where slopes range from 2 to 6 percent and a few where they range from 10 to 15 percent; and a few small areas of Enon, Iredell, and Mecklenburg soils. Inclusions make up less than 10 percent of this mapping unit.

Poor tilth on this Wilkes soil impedes seed germination, and uniform stands of crops are difficult to obtain. Part of the acreage is hardwood forest, part is pasture, and the rest is idle. Redcedar, hickory, and blackjack oak are dominant. Erosion and shallowness over rock are concerns in management. Capability unit IVe-3; woodland group 4o1.

Wilkes sandy loam, 10 to 15 percent slopes, eroded (W1D2).--This soil is on narrow ridges and side slopes.

Included with this soil in mapping are small areas of Enon, Mecklenburg, Lockhart, Wedowee, and Pacolet soils; and small areas where 50 percent or

more of the surface is covered with boulders and a few areas that are gullied. Inclusions make up about 20 percent of this mapping unit.

This Wilkes soil is not suitable for cultivation. A few areas are pasture. Most of the acreage is in low-quality hardwoods.

Erosion and shallowness over rock are concerns in management. Capability unit VIe-2; woodland group 4o1.

Wilkes sandy loam, 15 to 35 percent slopes (W1F).--This soil is on narrow ridges and breaks to drainageways.

Included with this soil in mapping are small areas of Enon, Mecklenburg, Lockhart, Wedowee, and Pacolet soils; small areas where 50 percent or more of the surface is covered with boulders; and a few areas that are gullied. Inclusions make up about 20 percent of this mapping unit.

This Wilkes soil is not suitable for cultivation. Most of the acreage is in low-quality hardwoods.

Erosion and shallowness over rock are concerns in management. Capability unit VIIe-2; woodland group 4r2.

Worsham Series

The Worsham series consists of deep, poorly drained, gently sloping soils in small drainageways and upland depressions. These soils formed in residuum from acid crystalline rocks, such as granite, gneiss, or schist.

In a representative profile, the surface layer is grayish-brown fine sandy loam about 6 inches thick. The subsoil extends to a depth of 45 inches. The upper part is light brownish-gray sandy clay loam mottled with yellowish brown. The lower part is gray clay loam mottled with dark gray and yellowish brown. Below this is a thick layer of gray, very firm, weathered material. Depth to bedrock is more than 15 feet.

Worsham soils have slow permeability, moderate infiltration, and medium available water capacity. They are low in organic-matter content. Most of the acreage is in low-quality hardwoods.

Representative profile of Worsham fine sandy loam, in an idle field 100 yards west of County Road No. 158 and about 5 miles south of Lancaster:

Ap--0 to 6 inches, grayish-brown (10YR 5/2) fine sandy loam; weak, medium, granular structure; loose; many fine roots; abundant fine holes; few fine pores; strongly acid; gradual, wavy boundary.

B1tg--6 to 16 inches, light brownish-gray (10YR 6/2) sandy clay loam; common, fine to coarse, distinct, yellowish-brown (10YR 5/6) mottles; weak, medium, subangular blocky structure; friable, slightly sticky; patchy faint clay films on peds; many fine and few medium roots; few fine holes and pores; very strongly acid; gradual, wavy boundary.

B2tg--16 to 45 inches, gray (10YR 6/1) clay loam; common, fine and coarse, distinct, dark-gray (10YR 4/1) and few, fine and medium, distinct, yellowish-brown mottles; moderate, medium, subangular blocky structure; very firm, slightly sticky, plastic; complete distinct clay films on peds; very strongly acid; gradual boundary.

C--45 to 50 inches, gray, very firm, weathered material; very strongly acid.

The A horizon is dark gray, very dark gray, grayish brown, or dark grayish brown and is 4 to 12 inches thick. The B horizon is dark gray, light gray, grayish brown, or light brownish gray. The B1 horizon is clay loam or sandy clay loam. The B2t horizon is clay loam to sandy clay. The solum ranges from 40 to 55 inches in thickness. Reaction is strongly acid in the A horizon and very strongly acid in the B horizon.

Worsham soils are associated with Enon, Durham, Appling, Helena, Gills, and Colfax soils, but occupy a lower position on the landscape and are more poorly drained.

Worsham fine sandy loam (Wo).--This soil is at the heads of drainageways and in upland depressions. Slopes range from 2 to 6 percent. In many places along the drainageways are deposits of colluvium and local alluvial sediment. In a few places, the sides of the drainageways have sloughed into adjoining channels and clayey material is exposed.

Included with this soil in mapping are areas where the surface layer is clay loam to loamy sand; small areas of Colfax and Durham soils; and small areas of a poorly drained soil that has a fragipan and a higher silt content. Inclusions make up less than 20 percent of this mapping unit.

Most of the acreage of this Worsham soil is in low-quality hardwoods. Some pasture plants are grown. The major concerns in management are ponding, proper internal drainage, and overwash of sediment from adjacent soils. Capability unit Vw-1; woodland group 2w8.

USE AND MANAGEMENT OF THE SOILS[2/]

The soils of Lancaster County are used for row crops, pasture, and woodland. This section explains how the soils can be used for these main purposes and also for recreation and wildlife and for farm ponds, highways, and other engineering structures.

The management of the soils for crops and pasture, woodland, and wildlife is described by groups of soils. To determine the soils in each of these groups, refer to the "Guide to Mapping Units" at the back of this publication.

Table 2 shows the suitability of soils in capability classes I through IV for specified crops. Table 3 shows predicted yields of the principal crops under two levels of management.

Crops and Pasture

Soils normally become less productive if they are used continuously for crops and pasture. Cultivation reduces the supply of organic matter, removes plant nutrients, and increases the erosion hazard. Perennial sod or annual cover crops are needed between periods of clean cultivation.

Fertilization.--Most of the soils in Lancaster County are low in natural fertility. Fertilization increases crop yields and the amount of crop residue. The kinds and amounts of fertilizer and lime to be applied can be determined by soil tests. A service that includes soil tests is made available by Clemson University and county agent representatives of the Cooperative Extension Service.

Erosion control.--All the soils on uplands have been damaged by sheet erosion. Some are severely eroded, and shallow gullies have formed. Terraces, contour cultivation, and wide strips of close-growing plants help control the rate and amount of runoff and reduce the erosion hazard. Terraces divert runoff into natural drainageways. Close-growing vegetation can be established in the drainageways.

Tillage.--Tillage implements that mix crop residue with the surface layer of the soil are desirable. All tilling should be done when soil moisture is favorable. Excessive tillage on sloping soils should be avoided. Contour tillage is desirable because it diverts water safely into grass waterways and thus helps protect the soil against erosion.

Grazing management.--The soils of Lancaster County are suited to many native and introduced species of forage plants. Tall fescue and white clover grow well in winter, and bermudagrass, dallis grass, bahiagrass, and sericea lespedeza grow well in summer. The growing season of these plants overlaps in spring and fall to give year-round grazing.

A grass-legume mixture (pl. II, top) produces the best pasture. Lime and fertilizer can be applied, in amounts indicated by soil tests, to keep pasture productive. Legumes respond well to applications of lime and phosphate. Grasses respond well to frequent applications of nitrogen. Commercial fertilizer or a legume crop is a source of nitrogen. Both grasses and legumes respond to moderate amounts of potash and lime. Rotation grazing and grazing only during periods of plant growth improve the quality and quantity of forage.

Weeds and woody plants can be controlled, as needed, by mowing and by proper use of herbicides. The material cut in mowing serves as a surface mulch and protects the soil from erosion. As the mulch decomposes, it adds organic matter to the soil and thus increases the activity of micro-organisms and conserves soil moisture.

Control of diseases and insects helps maintain desirable pasture plants that produce above average yields.

Annual plantings of small grain, ryegrass, or winter annual clover supplement winter perennials. These plants provide grazing until late in spring. Annual plantings of sudangrass or millet sometimes supplement summer perennials. These supplemental crops provide additional erosion control measures and should be grown on all soils used for field crops.

Capability Grouping

Capability grouping shows, in a general way, the suitability of soils for most kinds of field crops. The groups are made according to the limitations of the soils when used for field crops, the risk of damage when they are used, and the way they respond to treatment. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils; does not take into consideration possible but unlikely major reclamation projects; and does not apply to rice, cranberries, horticultural crops, or other crops requiring special management.

Those familiar with the capability classification can infer from it much about the behavior of soils when used for other purposes, but this classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for range, for forest trees, or for engineering.

In the capability system, all kinds of soil are grouped at three levels, the capability class, the subclass, and the unit. These levels are described in the following paragraphs.

CAPABILITY UNITS are soil groups within the subclasses. The soils in one capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses to management. Thus, the capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally

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2/ L. D. EAGLES, conservation agronomist, Soil Conservation Service, assisted in writing this section.

designated by adding an Arabic numeral to the subclass symbol, for example, IIe-3 or IVe-4. Thus, in one symbol, the Roman numeral designates the capability class, or degree of limitation; the small letter indicates the subclass, or kind of limitation, as defined in the foregoing paragraph; and the Arabic numeral specifically identifies the capability unit within each subclass.

In the following pages the capability units in Lancaster County are described and suggestions for the use and management of the soils are given.

CAPABILITY CLASSES, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use, defined as follows:

Class I soils have few limitations that restrict their use. (None in Lancaster County.)

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants, require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants, require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use largely to pasture or range, woodland, or wildlife.

Class VI soils have severe limitations that make them generally unsuitable for cultivation and limit their use largely to pasture or range, woodland, or wildlife.

Class VII soils have very severe limitations that make them unsuitable for cultivation and that restrict their use largely to pasture or range, woodland, or wildlife.

Class VIII soils and landforms have limitations that preclude their use for commercial crop production and restrict their use to recreation, wildlife, or water supply, or to esthetic purposes. (None in Lancaster County.)

CAPABILITY SUBCLASSES are soil groups within one class; they are designated by adding a small letter, e, w, s, or c, to the class numeral, for example, IIe. The letter e shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; w shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); s shows that the soil is limited mainly because it is shallow, droughty, or stony; and c, used in only some parts of the United States, shows that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses, because the soils of this class have few limitations. Class V can contain, at the most, only the subclasses indicated by w, s, and c, because the soils in class V are subject to little or no erosion, though they have other limitations that restrict their use largely to pasture, range, woodland, wildlife, or recreation.

Management by Capability Units

Each capability unit in Lancaster County is described in the pages that follow, and suggestions are given for use and management of the soils in each unit. To find the capability unit designation for a given soil, refer to the "Guide to Mapping Units" at the back of this survey.

Capability Unit IIe-1

This unit consists of gently sloping, deep to moderately deep, well drained and moderately well drained soils. The texture of the surface layer varies. These soils have moderate permeability. Their available water capacity is medium to high.

The soils of this unit are suited to the field crops commonly grown in the county, and to tall fescue and white clover for pasture.

Erosion is the main hazard. Contour tillage, diversion terraces, and a suitable cropping system are essential erosion-control measures. In some areas, no terraces are needed if sod crops are included in the crop rotation. Grass waterways are essential. Leaving crop residue on the surface increases the infiltration rate and reduces erosion. Mixing crop residue into the soil increases the organic-matter content and improves tilth.

Capability Unit IIe-2

This unit consists of gently sloping, deep, well-drained soils on uplands. The texture of the surface layer varies. Permeability is moderate to moderately rapid, and the available water capacity is medium to high.

The soils of this unit are suited to most crops commonly grown in the county and to tall fescue and white clover for pasture. They have good tilth.

Erosion is the major concern in management. Terraces, a cropping system in which close-growing crops are grown at least half the time, contour farming, and proper use of crop residue should be considered. Vegetation in natural draws is essential.

Capability Unit IIe-3

This unit consists of gently sloping, moderately deep, moderately well drained to well drained upland soils. These soils have a loam or fine sandy loam surface layer. Permeability is slow, and the available water capacity is medium to high.

The soils of this unit are suited to most crops commonly grown in the county and to tall fescue and white clover for pasture. Most of the acreage is pasture or woodland. The rest is idle.

Erosion is the chief hazard. Contour farming and grass waterways should be established for erosion control.

Capability Unit IIe-4

This unit consists only of Iredell complex, 2 to 6 percent slopes, eroded. These soils are moderately deep and moderately well drained. The texture of the surface layer varies. Permeability is slow, and the available water capacity is high.

These soils are suited to corn, grain sorghum, and oats, but are better suited to cotton, tall fescue, and white clover. They are poorly suited to deep-rooted plants. Rocks on the surface and a few rock outcrops interfere with tillage. Tilth is poor because the surface layer is fine textured and sticky. A firm, very sticky, plastic clay subsoil restricts the development of roots. It also makes building and maintaining terraces for erosion control difficult. Contour stripcropping is essential. The very high shrink-swell potential of the subsoil is also a limitation for uses other than farming.

Capability Unit IIe-5

This unit consists only of Vaucluse and Blaney loamy sands, 2 to 6 percent slopes. These soils are moderately deep to deep and well drained. The surface layer is loamy sand. Below this is a brittle fragipan. Permeability is moderately slow, and the available water capacity is low.

These soils are suited to cotton, corn, grain sorghum, and oats. They are also suited to Coastal bermudagrass, sericea lespedeza, and bahiagrass for hay and pasture.

Erosion is a hazard. Close-growing crops should be planted at least half the time to help control erosion and increase the organic-matter content. In addition to a suitable crop rotation, contour farming, a complete system of terraces, and vegetated waterways are needed.

Capability Unit IIw-2

This unit consists of deep, well-drained soils on bottom land of the larger streams and at the base of slopes. The texture of the surface layer and substratum varies. Permeability is moderate to moderately rapid, and the available water capacity is medium to high.

These soils are suited to corn, grain sorghum, oats, soybeans, and some truck crops. They are also suited to tall fescue and white clover for pasture.

If properly managed and protected, these soils have the potential for very high production. The chief hazards are flooding and siltation. In many places runoff from the adjacent upland soils can be corrected by diversion ditches. The hazard of flooding can be reduced by protective watershed dams and channel improvement.

Capability Unit IIs-1

Wagram sand, 2 to 6 percent slopes, the only soil in this unit, is deep, gently sloping, and well drained. The surface layer is sand 20 to 40 inches thick. The subsoil is sandy clay loam. Permeability is moderately rapid, and the available water capacity is medium.

This soil is suited to cotton, corn, grain sorghum, oats, soybeans, and truck crops (pl. I, bottom right). It is also suited to Coastal bermudagrass for pasture.

The chief limitation for crops is the low available water capacity in the thick, sandy surface layer. Droughtiness is likely to affect shallow-rooted crops. Maintaining the organic-matter content and fertility is also a concern in management. Planting windbreaks in large fields, stripcropping, rotating crops, using crop residue, and farming on the contour reduce the hazard of soil blowing. Returning crop residue to the soil increases the organic-matter content.

Capability Unit IIIe-1

This unit consists of gently sloping, severely eroded soils and sloping, eroded soils. These soils are deep to moderately deep and well drained. The texture of the surface layer varies. Permeability is moderate, and the available water capacity is medium to high.

The soils of this unit are suited to cotton, grain sorghum, and oats. They are also suited to tall fescue and white clover for pasture.

These soils are susceptible to erosion. Close-growing crops should be grown at least two-thirds of the time. Contour tillage, terraces, and grass waterways are essential. Stripcropping is desirable.

Capability Unit IIIe-2

This unit consists of gently sloping, severely eroded soils and sloping, eroded and uneroded soils. These soils are deep and well drained. The texture of the surface layer varies. Permeability is moderate to moderately rapid, and the available water capacity is medium to high.

The soils of this unit are suited to cotton, corn, grain sorghum, and oats. They are also suited to tall fescue and white clover for pasture.

These soils are easy to work, but because they are susceptible to erosion, they should be under close-growing crops at least two-thirds of the time. Contour tillage, terraces, and grass waterways are essential. Stripcropping is desirable.

Capability Unit IIIe-3

This unit consists of gently sloping, severely eroded soils and gently sloping to sloping, eroded

soils that are moderately deep, are moderately well drained to well drained, and have a plastic subsoil. The texture of the surface layer varies. Permeability is slow, and the available water capacity is medium to high.

These soils are suited to cotton, grain sorghum, and oats. They are also suited to tall fescue and white clover for pasture.

Erosion, the main hazard, and the plastic subsoil are concerns in management. Grass waterways are essential for erosion control. A suitable cropping system, contour farming, terraces, and stripcropping are needed. Terraces are less desirable than stripcropping because they are difficult to construct and maintain.

Capability Unit IIIe-4

This unit consists of moderately deep to deep, gently sloping to sloping, somewhat poorly drained to well-drained soils. The surface layer ranges in texture from sand through loamy sand to silt loam. These soils have a firm, brittle fragipan at a depth of 10 to 40 inches. Permeability is slow to moderately slow, and the available water capacity is low to high.

These soils are suited to grain sorghum, oats, and other close-growing plants. Most of the acreage is in pines and low-quality hardwoods. Because roots do not penetrate the fragipan, pine trees are susceptible to windthrow.

The restricted root zone and erosion are the major concerns in management. Grass waterways should be maintained for water disposal. Row crops should not be grown on these soils more than one-third of the time. Although these soils are suited to annual grasses for grazing, they should not be used intensively for this purpose.

Capability Unit IIIe-5

Wagram sand, 6 to 10 percent slopes, the only soil in this unit, is deep and well drained. The surface layer is sand 20 to 40 inches thick. Permeability is moderately rapid, and the available water capacity is medium.

This soil is suited to all the crops commonly grown in the county. It is also suited to Coastal bermudagrass for pasture (pl. II, bottom).

Wind erosion is a hazard in some areas. Droughtiness and erosion are the chief concerns in management. Stripcropping, rotating crops, managing crop residue, and farming on the contour help to control erosion. Leaving crop residue on the surface increases the organic-matter content and the available water capacity.

Capability Unit IIIw-2

Only Chewacla soils are in this unit. These nearly level, deep, somewhat poorly drained soils are on the flood plains of large streams. The texture of the surface layer varies. Permeability is moderate, and the available water capacity is high. The water table is very near the surface during rainy periods. For a few days after heavy rain, these soils are ponded with 1 foot to more than 10 feet of water. The depth of the root zone is restricted because the water table is high in winter and early in spring.

If adequately drained and protected from flooding, these soils are suited to corn, grain sorghum, and soybeans. They are also suited to tall fescue and white clover for pasture.

Flooding and the seasonal high water table are the major concerns in management. Upstream watersheds and ditch drainage systems can make these soils highly productive. Mixing crop residue into the soil is desirable.

Capability Unit IIIw-3

Colfax fine sandy loam, 2 to 6 percent slopes, the only soil in this unit, is a gently sloping, deep, somewhat poorly drained soil on uplands. It has a brittle fragipan at a depth of 36 inches. Permeability is slow, and the available water capacity is medium.

This soil is suited to corn, grain sorghum, oats, and soybeans. It is also suited to tall fescue and white clover for pasture.

This soil is easy to work and easy to keep in good tilth. The root zone is moderately deep to deep. Contour tillage, open-ditch drainage, and a moderate increase in the organic-matter content are needed.

Capability Unit IVe-1

This unit consists of sloping to strongly sloping, moderately deep to deep, well-drained soils on uplands. The texture of the surface layer varies. Permeability is moderate to moderately rapid, and the available water capacity is high.

The soils in this unit are well suited to woodland and to pasture plants. If row crops are grown, they should be part of a crop rotation in which sericea lespedeza and perennial grasses are grown most of the time. Row crops should be planted in strips on the contour and should not be grown on more than one-fourth of the field. All tillage should be on the contour.

All natural draws should be kept in close-growing plants for water disposal.

Capability Unit IVe-2

This unit consists of gently sloping to sloping, moderately deep to deep, eroded and severely eroded, somewhat poorly drained, moderately well drained, and well drained soils. The texture of the surface layer varies. These soils are underlain by a firm

to very firm, plastic to very plastic clay subsoil, or a fragipan. Permeability is slow. The available water capacity is high.

The soils in this unit are better suited to pasture grasses and trees than to cultivated crops. Their use for row crops is limited by a severe hazard of erosion.

Erosion is the main hazard and is difficult to control. Keeping waterways in close-growing, vigorous plants is essential. Contour farming, stripcropping, diversions, and grass waterways help to control erosion. Fertilizer and lime are needed. If row crops are grown, they should be included in a rotation in which perennials are grown most of the time.

Capability Unit IVe-3

This unit consists of gently sloping and sloping, shallow to moderately deep, well-drained to somewhat excessively drained soils. The surface layer is slaty silt loam to sandy loam. Permeability is moderately slow to moderately rapid, and the available water capacity is low to medium.

These soils are better suited to pasture plants than to cultivated crops. Most of the acreage is forest.

Intense management is needed. It should provide a long-term rotation in which close-growing crops are grown three-fourths of the time. All tillage should be on the contour. Stripcropping is beneficial in areas where it is feasible.

Permanent sod is needed in all natural draws.

Capability Unit IVe-4

This unit consists only of Vaucluse and Blaney loamy sands, 10 to 15 percent slopes. These are strongly sloping, moderately deep to deep, well-drained soils of the Sandhills. The surface layer is loamy sand. It is underlain by a firm, compact, brittle fragipan. Permeability of the subsoil is slow to moderately slow. The available water capacity is low.

These soils are poorly suited to cultivated crops. If properly managed, they are suited to Coastal bermudagrass. Farming on the contour, stripcropping, and grass waterways are essential in cultivated areas. Lime and fertilizer are needed for crops or pasture plants. The soils are more suitable for timber production than for field crops and pasture, but in some places on breaks windthrow is a hazard.

Capability Unit IVe-5

Wagram sand, 10 to 15 percent slopes, is the only soil in this unit. The surface layer is 20 to 40 inches thick. Permeability is moderately rapid, and the available water capacity is medium.

This soil is not suitable for continuous cultivation. If cultivated, it is better suited to deep-rooted crops. It is suited to Coastal bermudagrass for pasture or hay. It responds to fertilizer and lime. Split applications of fertilizer reduce the loss by leaching.

The low organic-matter content and low fertility are concerns in management. Soil blowing and water erosion are slight hazards. Stripcropping, windbreaks, and careful row arrangement help to reduce these hazards in cultivated areas. Grass waterways should be established and maintained in areas where water is concentrated.

This soil is better suited to loblolly and slash pine plantings than to cultivated crops and pasture grasses.

Capability Unit IVw-1

This unit consists of Wehadkee and Chewacla soils. These nearly level, poorly drained and somewhat poorly drained soils are along small streams and on bottom land along large streams. They are frequently flooded. The texture of the surface layer and the underlying material varies. In places the underlying material is stratified with sand, silt, or clay. Permeability is moderate, and the available water capacity is high.

Cultivation is restricted. If drained by open ditches, these soils are suited to corn and grain sorghum. Undrained areas are suitable only for range. Drainage by V-type ditches is desirable.

Capability Unit IVs-1

This unit consists of sloping, deep soils that are somewhat excessively drained. The surface layer is sand to loamy sand 20 to 70 inches thick. Permeability is rapid to moderately rapid, and the available water capacity is low. Tilth is easy to maintain, and these loose sandy soils can be worked throughout a wide range of moisture content.

These soils are well suited to Coastal bermudagrass. They are also suited to cotton, corn, oats, and soybeans and to melons and other truck crops.

Applying fertilizer in split applications reduces the loss by leaching. Even if these soils are well managed, the supply of organic matter is rapidly depleted. Conservation practices are needed constantly to maintain a fairly adequate supply of organic matter.

Capability Unit Vw-1

Worsham fine sandy loam is the only soil in this unit. This gently sloping, poorly drained soil occurs as narrow areas along small drainageways and intermittent streams, in depressions, and around the heads of small streams and draws. In many areas there are recent deposits of material washed from the surrounding soils. The surface layer is fine sandy loam. Permeability is slow, and available water capacity is medium.

This soil is wet during most of the growing season and is not suitable for cultivation. The most feasible drainage is through open V-type ditches.

Capability Unit Vw-2

Rutlege loamy sand, the only soil in this unit, is a nearly level, very poorly drained soil on broad flats and in drainageways. The surface layer and subsurface layer are loamy sand. Permeability is rapid, and the available water capacity is low.

Because this soil occupies a low position on the landscape, water stands on the surface for long periods.

Most of the acreage is woodland, but a few small areas are pasture. Intensive drainage is needed in areas that are used for permanent pasture.

Capability Unit VIe-1

This unit consists of strongly sloping to moderately steep, moderately deep to deep, well-drained, eroded or severely eroded soils. These soils are on uplands. The texture of the surface layer varies. Permeability is moderate, and the available water capacity is medium.

These soils are suitable for permanent pasture if grazing can be controlled to insure a good sod cover. Lime and large applications of fertilizer are generally needed. A large part of the acreage is used for timber.

Capability Unit VIe-2

This unit consists of strongly sloping to moderately steep soils of the uplands. These soils are shallow and have a thin or discontinuous subsoil. The texture of the surface layer ranges from slaty silt loam to sandy loam. Fragments of weathered rock are common throughout the solum. Permeability is moderate to slow. The available water capacity is low to medium.

If limed and heavily fertilized, these soils are suited to tall fescue, white clover, and annual lespedeza. Controlled grazing is needed to insure a good sod cover.

Capability Unit VIe-3

This unit consists of sloping to moderately steep, eroded and severely eroded upland soils. These soils are moderately deep and somewhat poorly drained to well drained. The surface layer is silt loam, loam, or clay loam. Some of the soils in this unit contain a fragipan. The pan is between depths of 26 and 36 inches. Permeability is slow, and the available water capacity is medium to high.

If limed and heavily fertilized, these soils are suited to annual lespedeza and tall fescue. A good sod should be kept on these soils at all times.

Capability Unit VIs-1

This unit consists of sloping to strongly sloping upland soils in the Sandhills. The surface layer is sand to loamy sand 20 to 60 inches thick. Permeability is rapid to moderately rapid, and the available water capacity is low.

If well managed, these soils are suited to Coastal bermudagrass. They require large quantities of fertilizer, in split applications. Many acres have been planted to pines.

Capability Unit VIIe-1

This unit consists of moderately steep to steep, moderately deep to deep, well-drained soils. The texture of the surface layer varies. Permeability is moderate to moderately rapid, and the available water capacity is medium.

These soils are suited to trees and to plantings that provide habitat for wildlife.

Capability Unit VIIe-2

This unit consists of Gullied land and sloping, moderately steep and steep, well-drained to excessively drained soils. The surface layer is loamy sand or clay. It is underlain mainly by weathered parent material. Permeability is slow to very slow, and the available water capacity is low to high.

This unit is suited to trees, but growth rates vary because the depth of the root zone varies.

Capability Unit VIIs-2

This capability unit consists only of Rock land. Rocks a few inches to a few feet in diameter, boulders, and large rock outcrops cover much of the surface area. The soil material ranges from clay to sandy clay loam. There are areas where bedrock is exposed, and other areas where the soil material is deep and many rocks are on and below the surface. Permeability and the available water capacity vary.

Rock land is not suitable for cultivation. A few areas have been cleared and used as pasture.

Suitability of the Soils for Crops

Suitability ratings of the principal soils in the county for stated crops are shown in table 2. Soils that are rated well suited are the most desirable for the stated crop. They require the least intensive management, are subject to the fewest hazards, produce the most dependable yields, and are not subject to damage by erosion. Soils rated fairly well suited are limited by excessive moisture, for example, or lack of moisture, a shallow root zone, or low fertility. Soils rated not well suited cannot be expected to produce good yields of the specified crop unless management is intensive. Such management is not justified as a general rule. Soils rated poorly suited are poorly suited to the stated crop, failure is likely, and hazards and limitations are very severe.

Suitability ratings for specified crops apply only to the soils in capability classes II, III, and IV.

Estimated Yields

The estimated average-acre yields of the principal crops grown under two levels of management on the soils of Lancaster County are shown in table 3. The figures in columns A indicate yields obtained under prevailing management. Those in columns B indicate yields to be expected under improved management.

The yields indicated in columns A are based largely on observations by members of the soil survey party, on information obtained from farmers and other agricultural workers who have had experience with the soils and crops of the county, and on comparison with crop yields obtained from similar soils in other counties in South Carolina.

Practices used in improved management vary according to the soils. The following practices are considered necessary for obtaining the yields shown in columns B:

(1) Proper choice and rotation of crops.
(2) Use of correct methods of tillage.
(3) Return of organic matter to the soils.
(4) Adequate control of water.
(5) Improvement in workability of the soil.
(6) Conservation of soil material, plant nutrients, and soil moisture.
(7) Use of adapted varieties and high-quality seed or plants.

The response of a soil to management can be measured in part by comparing the yields shown in columns B with those in columns A. Better yields can be obtained from nearly all the soils in the county through improved management.

Gullied land and Rock land are not listed in table 3. Neither is used for crops.

Wildlife[3/]

The wildlife population of any area depends on the availability of food, cover, and water in a suitable combination. Habitat is created, improved, and maintained by establishing desirable vegetation and developing water supply in suitable places.

In table 4 each of the soils in Lancaster County is rated according to its suitability for the elements of wildlife habitat and also for three classes of wildlife. These ratings refer only to the suitability of the soil and do not take into account the climate, the present use of the soil, or the distribution of wildlife and human populations. The suitability of individual sites has to be determined by onsite inspection. Gullied land is not listed in table 4.

The meanings of the numerical ratings used in table 4 are as follows: Well suited means that habitat generally can be easily created, improved, or maintained; that the soil has few or no limitations that affect management; and that satisfactory results can be expected. Suited means that habitat can be created, improved, or maintained in most places; that the soil has moderate limitations that affect management; and that moderate intensity of management and fairly frequent attention may be required for satisfactory results. Poorly suited indicates that habitat can be created, improved, or maintained in most places; that the soil has severe limitations; that habitat management is difficult and expensive and requires intensive effort; and that results are not always satisfactory. Unsuited indicates that it is impractical or perhaps impossible to create, improve, or maintain habitat and that unsatisfactory results are probable.

Grain and seed crops are grain-producing or seed-producing annual plants planted for wildlife food. Some examples are: sorghum, browntop millet, cattail millet, corn, wheat, oats, and sunflowers.

Grasses and legumes are domestic grasses and legumes established by planting that furnish food or cover for wildlife. The grasses include ryegrass, bahiagrass, fescue, and panicgrass. Legumes include clover, annual lespedeza, bush lespedeza, and cowpeas.

Wild herbaceous upland plants are native or introduced perennial or reseeding grasses, forbs, and weeds that provide food and cover, principally to upland forms of wildlife, and that are established mainly through natural processes. Examples are beggarweed, wild lespedeza, pokeberry, bristlegrass, crabgrass, croton, and partridgepea.

Hardwood woody plants are nonconiferous trees, shrubs, and woody vines that produce fruit, nuts, buds, catkins, or foliage (browse) used extensively as food by wildlife, and that commonly are established through natural processes, but also may be planted. Examples are oak, beech, cherry, hickory, dogwood, viburnum, grapes, greenbriers, sweetgum, and elaeagnus.

Coniferous woody plants are cone-bearing trees and shrubs that are important to wildlife mainly as cover, but that also furnish food in the form of browse, seeds, or fruitlike cones. They may become established through natural processes or may be planted. Examples are native cedars, pines, and introduced ornamentals.

Wetland food and cover plants are annual and perennial herbaceous plants that grow on moist or wet sites. They do not include submersed or floating aquatics. These plants furnish food or cover mostly for wetland wildlife. Some examples are smartweed, wild millet, spikerush and other rushes, sedges, burreed, and aneilema.

Shallow water developments are areas where low dikes and water control structures are established to create habitat principally for waterfowl. They are usually designed whereby they can be drained, planted, and flooded.

3/ By WILLIAM W. NEELY, biologist, Soil Conservation Service.

TABLE 2.--SUITABILITY OF

[Only soils in capability classes

Soil	Cotton	Corn
Appling fine sandy loam, 2 to 6 percent slopes, eroded	Well suited	Fairly well suited
Appling fine sandy loam, 6 to 10 percent slopes, eroded	Well suited	Fairly well suited
Appling fine sandy loam, 10 to 15 percent slopes, eroded	Fairly well suited	Fairly well suited
Appling sandy clay loam, 6 to 10 percent slopes, severely eroded	Fairly well suited	Not well suited
Appling and Chesterfield soils, 2 to 6 percent slopes, eroded	Fairly well suited	Fairly well suited
Appling and Chesterfield soils, 6 to 10 percent slopes, eroded	Well suited	Fairly well suited
Appling and Chesterfield soils, 10 to 15 percent slopes, eroded	Fairly well suited	Fairly well suited
Blaney sand, 6 to 10 percent slopes	Not well suited	Not well suited
Blanton sand, 0 to 6 percent slopes	Not well suited	Not well suited
Cecil fine sandy loam, 2 to 6 percent slopes, eroded	Well suited	Well suited
Cecil fine sandy loam, 6 to 10 percent slopes, eroded	Well suited	Fairly well suited
Cecil fine sandy loam, 10 to 15 percent slopes, eroded	Fairly well suited	Fairly well suited
Cecil clay loam, 2 to 6 percent slopes, severely eroded	Fairly well suited	Fairly well suited
Cecil clay loam, 6 to 10 percent slopes, severely eroded	Fairly well suited	Fairly well suited
Chewacla soils	Poorly suited	Well suited
Colfax fine sandy loam, 2 to 6 percent slopes	Poorly suited	Not well suited
Congaree soils	Poorly suited	Well suited
Davidson clay loam, 2 to 6 percent slopes, eroded	Fairly well suited	Fairly well suited
Davidson clay loam, 6 to 10 percent slopes, eroded	Fairly well suited	Not well suited
Davidson clay loam, 10 to 15 percent slopes, eroded	Not well suited	Not well suited
Durham loamy sand, 2 to 6 percent slopes	Well suited	Fairly well suited
Durham loamy sand, 2 to 6 percent slopes, eroded	Fairly well suited	Fairly well suited
Durham loamy sand, 6 to 10 percent slopes, eroded	Fairly well suited	Fairly well suited
Enon loam, 2 to 6 percent slopes, eroded	Fairly well suited	Not well suited
Enon loam, 6 to 10 percent slopes, eroded	Not well suited	Poorly suited
Enon clay loam, 2 to 6 percent slopes, severely eroded	Not well suited	Poorly suited
Eustis loamy sand, 0 to 6 percent slopes	Not well suited	Not well suited
Georgeville silt loam, 2 to 6 percent slopes, eroded	Well suited	Fairly well suited
Georgeville silt loam, 6 to 10 percent slopes, eroded	Fairly well suited	Fairly well suited
Georgeville silty clay loam, 2 to 6 percent slopes, severely eroded	Fairly well suited	Fairly well suited
Georgeville silty clay loam, 6 to 10 percent slopes, severely eroded	Fairly well suited	Not well suited
Gills silt loam, 2 to 6 percent slopes	Poorly suited	Poorly suited
Gills silt loam, 2 to 6 percent slopes, eroded	Poorly suited	Poorly suited

SOILS FOR SPECIFIED CROPS

II, III, and IV are listed]

Grain sorghum	Oats	Soybeans	Coastal bermudagrass	Tall fescue and white clover for pasture
Fairly well suited--	Fairly well suited-	Fairly well suited-	Fairly well suited---	Fairly well suited.
Fairly well suited--	Fairly well suited-	Not well suited----	Fairly well suited---	Fairly well suited.
Fairly well suited--	Not well suited----	Not well suited----	Not well suited------	Fairly well suited.
Fairly well suited--	Not well suited----	Not well suited----	Poorly suited--------	Fairly well suited.
Fairly well suited--	Well suited--------	Well suited--------	Fairly well suited---	Fairly well suited.
Fairly well suited--	Fairly well suited-	Fairly well suited-	Fairly well suited---	Fairly well suited.
Fairly well suited--	Not well suited----	Fairly well suited-	Fairly well suited---	Fairly well suited.
Not well suited-----	Not well suited----	Not well suited----	Fairly well suited---	Poorly suited.
Not well suited-----	Not well suited----	Not well suited----	Fairly well suited---	Poorly suited.
Fairly well suited--	Fairly well suited-	Well suited--------	Fairly well suited---	Well suited.
Fairly well suited--	Fairly well suited-	Fairly well suited-	Fairly well suited---	Fairly well suited.
Not well suited-----	Not well suited----	Not well suited----	Not well suited------	Fairly well suited.
Fairly well suited--	Not well suited----	Not well suited----	Poorly suited--------	Fairly well suited.
Not well suited-----	Not well suited----	Poorly suited------	Poorly suited--------	Fairly well suited.
Fairly well suited---	Poorly suited------	Fairly well suited-	Poorly suited--------	Well suited.
Fairly well suited--	Fairly well suited-	Not well suited----	Poorly suited--------	Well suited.
Well suited---------	Well suited--------	Well suited--------	Poorly suited--------	Well suited.
Fairly well suited--	Fairly well suited-	Not well suited----	Poorly suited--------	Fairly well suited.
Fairly well suited--	Not well suited----	Not well suited----	Poorly suited--------	Fairly well suited.
Not well suited-----	Not well suited----	Poorly suited------	Poorly suited--------	Fairly well suited.
Fairly well suited--	Fairly well suited-	Well suited--------	Well suited----------	Fairly well suited.
Fairly well suited--	Fairly well suited-	Fairly well suited-	Fairly well suited---	Fairly well suited.
Fairly well suited--	Not well suited----	Not well suited----	Fairly well suited---	Fairly well suited.
Fairly well suited--	Not well suited----	Not well suited----	Poorly suited--------	Fairly well suited.
Fairly well suited--	Not well suited----	Poorly suited------	Poorly suited--------	Fairly well suited.
Not well suited-----	Not well suited----	Poorly suited------	Poorly suited--------	Not well suited.
Poorly suited-------	Not well suited----	Not well suited----	Fairly well suited---	Poorly suited.
Fairly well suited--	Fairly well suited-	Fairly well suited-	Poorly suited--------	Fairly well suited.
Fairly well suited--	Fairly well suited-	Not well suited----	Poorly suited--------	Fairly well suited.
Fairly well suited--	Not well suited----	Not well suited----	Poorly suited--------	Fairly well suited.
Not well suited-----	Not well suited----	Poorly suited------	Poorly suited--------	Fairly well suited.
Not well suited-----	Not well suited----	Poorly suited------	Poorly suited--------	Not well suited.
Not well suited-----	Poorly suited------	Poorly suited------	Poorly suited--------	Not well suited.

TABLE 2.--SUITABILITY OF SOILS

Soil	Cotton	Corn
Goldston-Pickens complex, 2 to 6 percent slopes--	Poorly suited----------	Poorly suited----------
Goldston-Pickens complex, 6 to 10 percent slopes-	Poorly suited----------	Poorly suited----------
Helena fine sandy loam, 2 to 6 percent slopes----	Fairly well suited--------	Fairly well suited----------
Helena fine sandy loam, 2 to 6 percent slopes, eroded----------	Fairly well suited--------	Fairly well suited----------
Helena fine sandy loam, 6 to 10 percent slopes, eroded----------	Not well suited----------	Not well suited----------
Helena fine sandy loam, 2 to 10 percent slopes, severely eroded----------	Poorly suited----------	Not well suited----------
Herndon silt loam, 2 to 6 percent slopes, eroded-	Fairly well suited--------	Fairly well suited----------
Herndon silt loam, 6 to 10 percent slopes, eroded----------	Fairly well suited--------	Fairly well suited----------
Herndon silt loam, 10 to 15 percent slopes, eroded----------	Not well suited----------	Not well suited----------
Herndon silty clay loam, 2 to 6 percent slopes, severely eroded----------	Fairly well suited--------	Not well suited----------
Herndon silty clay loam, 6 to 10 percent slopes, severely eroded----------	Fairly well suited--------	Not well suited----------
Iredell complex, 2 to 6 percent slopes, eroded---	Well suited----------	Not well suited----------
Iredell complex, 6 to 10 percent slopes, eroded--	Fairly well suited--------	Not well suited----------
Lockhart gravelly sandy loam, 2 to 6 percent slopes----------	Fairly well suited--------	Poorly suited----------
Lockhart gravelly sandy loam, 6 to 10 percent slopes----------	Not well suited----------	Poorly suited----------
Lockhart gravelly sandy loam, 10 to 15 percent slopes----------	Poorly suited----------	Poorly suited----------
Masada and Altavista soils, 2 to 6 percent slopes----------	Fairly well suited--------	Fairly well suited----------
Mecklenburg fine sandy loam, 2 to 6 percent slopes, eroded----------	Well suited----------	Fairly well suited----------
Mecklenburg fine sandy loam, 6 to 10 percent slopes, eroded----------	Fairly well suited--------	Fairly well suited----------
Mecklenburg fine sandy loam, 10 to 15 percent slopes, eroded----------	Fairly well suited--------	Not well suited----------
Mecklenburg clay loam, 6 to 10 percent slopes, severely eroded----------	Not well suited----------	Poorly suited----------
Nason loam, 10 to 15 percent slopes, eroded------	Not well suited----------	Not well suited----------
Pacolet sandy loam, 2 to 6 percent slopes, eroded----------	Well suited----------	Fairly well suited----------
Pacolet sandy loam, 6 to 10 percent slopes, eroded----------	Fairly well suited--------	Not well suited----------
Pacolet sandy loam, 10 to 15 percent slopes, eroded----------	Fairly well suited--------	Not well suited----------
Pacolet clay loam, 2 to 6 percent slopes, severely eroded----------	Fairly well suited--------	Poorly suited----------
Pacolet clay loam, 6 to 10 percent slopes, severely eroded----------	Not well suited----------	Poorly suited----------
Starr soils----------	Poorly suited----------	Well suited----------
Tatum loam, 10 to 15 percent slopes, eroded------	Not well suited----------	Not well suited----------
Vaucluse and Blaney loamy sands, 2 to 6 percent slopes----------	Fairly well suited--------	Not well suited----------
Vaucluse and Blaney loamy sands, 6 to 10 percent slopes----------	Not well suited----------	Poorly suited----------
Vaucluse and Blaney loamy sands, 10 to 15 percent slopes----------	Poorly suited----------	Poorly suited----------
Wagram sand, 2 to 6 percent slopes----------	Fairly well suited--------	Fairly well suited----------

FOR SPECIFIED CROPS--Continued

Grain sorghum	Oats	Soybeans	Coastal bermudagrass	Tall fescue and white clover for pasture
Not well suited------	Poorly suited--------	Not well suited-----	Poorly suited---------	Not well suited.
Poorly suited--------	Poorly suited--------	Not well suited-----	Poorly suited---------	Not well suited.
Fairly well suited---	Fairly well suited---	Fairly well suited--	Poorly suited---------	Fairly well suited.
Fairly well suited---	Not well suited------	Not well suited-----	Poorly suited---------	Fairly well suited.
Fairly well suited---	Not well suited------	Not well suited-----	Poorly suited---------	Fairly well suited.
Not well suited------	Not well suited------	Poorly suited-------	Poorly suited---------	Not well suited.
Fairly well suited---	Fairly well suited---	Fairly well suited--	Poorly suited---------	Fairly well suited.
Fairly well suited---	Fairly well suited---	Fairly well suited--	Poorly suited---------	Fairly well suited.
Not well suited------	Not well suited------	Poorly suited-------	Poorly suited---------	Fairly well suited.
Fairly well suited---	Not well suited------	Not well suited-----	Poorly suited---------	Fairly well suited.
Not well suited------	Not well suited------	Poorly suited-------	Poorly suited---------	Fairly well suited.
Fairly well suited---	Fairly well suited---	Poorly suited-------	Poorly suited---------	Well suited.
Fairly well suited---	Not well suited------	Poorly suited-------	Poorly suited---------	Well suited.
Not well suited------	Not well suited------	Not well suited-----	Poorly suited---------	Not well suited.
Poorly suited--------	Not well suited------	Poorly suited-------	Poorly suited---------	Not well suited.
Poorly suited--------	Poorly suited--------	Poorly suited-------	Poorly suited---------	Poorly suited.
Fairly well suited---	Fairly well suited---	Fairly well suited--	Poorly suited---------	Fairly well suited.
Fairly well suited---	Fairly well suited---	Fairly well suited--	Poorly suited---------	Fairly well suited.
Fairly well suited---	Fairly well suited---	Fairly well suited--	Poorly suited---------	Fairly well suited.
Not well suited------	Not well suited------	Poorly suited-------	Poorly suited---------	Fairly well suited.
Not well suited------	Not well suited------	Poorly suited-------	Poorly suited---------	Fairly well suited.
Fairly well suited---	Not well suited------	Poorly suited-------	Poorly suited---------	Fairly well suited.
Fairly well suited---	Fairly well suited---	Not well suited-----	Poorly suited---------	Fairly well suited.
Fairly well suited---	Not well suited------	Not well suited-----	Poorly suited---------	Fairly well suited.
Not well suited------	Not well suited------	Poorly suited-------	Poorly suited---------	Fairly well suited.
Fairly well suited---	Not well suited------	Poorly suited-------	Poorly suited---------	Fairly well suited.
Poorly suited--------	Not well suited------	Poorly suited-------	Poorly suited---------	Fairly well suited.
Fairly well suited---	Well suited----------	Well suited---------	Poorly suited---------	Well suited.
Fairly well suited---	Not well suited------	Poorly suited-------	Poorly suited---------	Fairly well suited.
Fairly well suited---	Fairly well suited---	Not well suited-----	Fairly well suited----	Poorly suited.
Poorly suited--------	Not well suited------	Not well suited-----	Fairly well suited----	Poorly suited.
Poorly suited--------	Poorly suited--------	Poorly suited-------	Fairly well suited----	Poorly suited.
Fairly well suited---	Fairly well suited---	Fairly well suited--	Fairly well suited----	Poorly suited.

TABLE 2.--SUITABILITY OF SOILS

Soil	Cotton	Corn
Wagram sand, 6 to 10 percent slopes	Fairly well suited	Not well suited
Wagram sand, 10 to 15 percent slopes	Not well suited	Poorly suited
Wehadkee and Chewacla soils	Poorly suited	Not well suited
Wickham sandy loam, 2 to 6 percent slopes, eroded	Well suited	Fairly well suited
Wickham sandy loam, 6 to 10 percent slopes, eroded	Fairly well suited	Fairly well suited
Wickham sandy clay loam, 6 to 10 percent slopes, severely eroded	Not well suited	Not well suited
Wilkes sandy loam, 6 to 10 percent slopes, eroded	Not well suited	Not well suited

FOR SPECIFIED CROPS--Continued

Grain sorghum	Oats	Soybeans	Coastal bermudagrass	Tall fescue and white clover for pasture
Fairly well suited--	Not well suited-----	Not well suited----	Fairly well suited--	Poorly suited.
Poorly suited-------	Not well suited-----	Poorly suited------	Fairly well suited--	Poorly suited.
Fairly well suited--	Poorly suited-------	Poorly suited------	Poorly suited-------	Fairly well suited.
Fairly well suited--	Fairly well suited--	Fairly well suited-	Poorly suited-------	Well suited.
Fairly well suited--	Fairly well suited--	Fairly well suited-	Poorly suited-------	Fairly well suited.
Fairly well suited--	Not well suited-----	Poorly suited------	Poorly suited-------	Fairly well suited.
Not well suited-----	Not well suited-----	Poorly suited------	Poorly suited-------	Fairly well suited.

TABLE 3.--ESTIMATED AVERAGE YIELDS PER ACRE OF

[Figures in columns A indicate yields obtained under prevailing management; figures in columns B indicate commonly grown on the soil specified.

Soil	Cotton (lint)		Corn	
	A	B	A	B
	Lb.	Lb.	Bu.	Bu.
Appling fine sandy loam, 2 to 6 percent slopes, eroded	400	625	40	75
Appling fine sandy loam, 6 to 10 percent slopes, eroded	250	550	40	70
Appling fine sandy loam, 10 to 15 percent slopes, eroded	300	450	25	55
Appling sandy clay loam, 6 to 10 percent slopes, severely eroded	200	400	20	50
Appling sandy clay loam, 10 to 15 percent slopes, severely eroded	175	375	20	45
Appling and Chesterfield soils, 2 to 6 percent slopes, eroded	450	700	40	75
Appling and Chesterfield soils, 6 to 10 percent slopes, eroded	350	600	35	70
Appling and Chesterfield soils, 10 to 15 percent slopes, eroded	250	450	25	60
Blaney sand, 6 to 10 percent slopes	150	300	15	40
Blanton sand, 0 to 6 percent slopes	200	325	15	40
Blanton sand, 6 to 15 percent slopes	---	---	--	--
Cecil fine sandy loam, 2 to 6 percent slopes, eroded	400	625	40	85
Cecil fine sandy loam, 6 to 10 percent slopes, eroded	400	550	30	80
Cecil fine sandy loam, 10 to 15 percent slopes, eroded	300	400	20	65
Cecil fine sandy loam, 15 to 25 percent slopes, eroded	---	---	--	--
Cecil clay loam, 2 to 6 percent slopes, severely eroded	225	425	25	60
Cecil clay loam, 6 to 10 percent slopes, severely eroded	200	400	20	55
Cecil clay loam, 10 to 25 percent slopes, severely eroded	---	---	--	--
Chewacla soils	---	---	25	85
Colfax fine sandy loam, 2 to 6 percent slopes	---	---	30	50
Congaree soils	---	---	50	100
Davidson clay loam, 2 to 6 percent slopes, eroded	250	425	28	60
Davidson clay loam, 6 to 10 percent slopes, eroded	225	375	20	50
Davidson clay loam, 10 to 15 percent slopes, eroded	200	325	17	40
Durham loamy sand, 2 to 6 percent slopes	250	550	35	70
Durham loamy sand, 2 to 6 percent slopes, eroded	250	500	33	65
Durham loamy sand, 6 to 10 percent slopes, eroded	225	475	30	55
Enon clay loam, 2 to 6 percent slopes, severely eroded	150	325	12	30
Enon clay loam, 6 to 15 percent slopes, severely eroded	---	---	--	--
Enon loam, 2 to 6 percent slopes, eroded	200	450	20	45
Enon loam, 6 to 10 percent slopes, eroded	190	350	15	35
Enon loam, 10 to 25 percent slopes, eroded	---	---	--	--
Eustis loamy sand, 0 to 6 percent slopes	200	325	20	50
Eustis loamy sand, 6 to 15 percent slopes	150	300	20	40
Georgeville silt loam, 2 to 6 percent slopes, eroded	375	550	35	75
Georgeville silt loam, 6 to 10 percent slopes, eroded	350	500	30	65
Georgeville silty clay loam, 2 to 6 percent slopes, severely eroded	225	425	25	55
Georgeville silty clay loam, 6 to 10 percent slopes, severely eroded	200	400	25	50
Gills silt loam, 2 to 6 percent slopes	175	250	15	30
Gills silt loam, 2 to 6 percent slopes, eroded	160	200	12	25
Gills silt loam, 6 to 10 percent slopes, eroded	---	---	--	--
Goldston-Pickens complex, 2 to 6 percent slopes	175	250	15	30
Goldston-Pickens complex, 6 to 10 percent slopes	160	200	12	25
Helena fine sandy loam, 2 to 6 percent slopes	275	500	30	65

See footnote at end of table.

PRINCIPAL CROPS UNDER TWO LEVELS OF MANAGEMENT

yields expected under improved management. Absence of figure indicates the crop is not suited to or is not
Only arable soils are listed]

Grain sorghum		Oats		Soybeans		Fescue and white clover for pasture		Coastal bermudagrass for hay	
A	B	A	B	A	B	A	B	A	B
Bu.	Bu.	Bu.	Bu.	Bu.	Bu.	Cow-acre-days 1/	Cow-acre-days 1/	Tons	Tons
30	50	45	70	18	30	130	170	---	3.0
25	45	35	60	12	18	100	155	---	2.5
25	35	20	45	10	15	80	140	---	---
20	40	18	42	9	15	75	130	---	---
20	35	18	35	--	12	75	130	---	---
40	60	40	75	20	35	120	185	---	---
25	50	35	65	18	30	120	175	---	---
20	35	20	45	12	20	85	140	---	---
--	--	18	30	10	15	---	---	1.5	3.5
--	--	22	45	10	18	---	---	1.2	4.0
--	--	--	--	--	--	---	---	1.0	3.5
35	50	45	70	20	35	130	200	---	3.5
20	45	35	60	12	25	100	155	---	3.0
18	40	25	42	--	--	80	130	---	---
--	--	--	--	--	--	80	130	---	---
30	42	30	55	10	15	95	145	---	---
20	40	25	42	--	--	90	130	---	---
--	--	--	--	--	--	---	---	---	---
20	60	--	--	15	30	100	200	---	---
18	50	25	55	12	20	130	210	---	---
30	65	30	75	20	35	125	210	---	---
20	42	25	58	10	15	105	145	---	---
18	35	22	50	8	12	95	135	---	---
15	30	20	40	--	--	120	175	---	---
25	55	30	60	16	35	110	165	2.2	6.0
22	45	25	55	16	30	110	165	2.0	3.5
20	35	20	45	12	20	100	150	1.5	3.0
10	30	15	35	--	--	80	125	---	---
--	--	--	--	--	--	80	125	---	---
15	40	25	50	8	12	120	170	---	---
12	35	20	40	--	--	95	145	---	---
--	--	--	--	--	--	85	140	---	---
--	--	25	45	10	15	---	---	1.5	3.0
--	--	--	--	--	--	---	---	1.5	2.5
30	50	40	65	18	25	120	175	---	---
25	40	30	55	10	15	115	165	---	---
20	35	25	50	10	15	85	140	---	---
18	30	20	45	--	--	80	130	---	---
15	30	15	30	--	--	75	120	---	---
12	25	12	25	--	--	60	100	---	---
--	--	--	--	--	--	60	100	---	---
15	30	15	30	10	18	50	80	---	---
12	25	12	25	8	15	45	65	---	---
20	45	30	60	15	25	120	170	---	---

TABLE 3.--ESTIMATED AVERAGE YIELDS PER ACRE OF PRINCIPAL

Soil	Cotton (lint)		Corn	
	A	B	A	B
	Lb.	Lb.	Bu.	Bu.
Helena fine sandy loam, 2 to 6 percent slopes, eroded	200	450	25	55
Helena fine sandy loam, 6 to 10 percent slopes, eroded	200	350	20	50
Helena fine sandy loam, 2 to 10 percent slopes, severely eroded	---	---	15	40
Herndon silt loam, 2 to 6 percent slopes, eroded	350	500	30	70
Herndon silt loam, 6 to 10 percent slopes, eroded	275	450	30	60
Herndon silt loam, 10 to 15 percent slopes, eroded	200	370	25	45
Herndon silty clay loam, 2 to 6 percent slopes, severely eroded	225	425	25	45
Herndon silty clay loam, 6 to 10 percent slopes, severely eroded	200	400	25	40
Iredell complex, 2 to 6 percent slopes, eroded	300	850	25	50
Iredell complex, 6 to 10 percent slopes, eroded	225	600	20	40
Lockhart gravelly sandy loam, 2 to 6 percent slopes	250	400	15	30
Lockhart gravelly sandy loam, 6 to 10 percent slopes	200	325	12	25
Lockhart gravelly sandy loam, 10 to 15 percent slopes	---	---	--	--
Lockhart gravelly sandy loam, 15 to 25 percent slopes	---	---	--	--
Lockhart gravelly sandy loam, 25 to 40 percent slopes	---	---	--	--
Masada and Altavista soils, 2 to 6 percent slopes	375	500	30	75
Mecklenburg fine sandy loam, 2 to 6 percent slopes, eroded	275	700	25	70
Mecklenburg fine sandy loam, 6 to 10 percent slopes, eroded	260	500	20	55
Mecklenburg fine sandy loam, 10 to 15 percent slopes, eroded	200	400	18	45
Mecklenburg clay loam, 6 to 10 percent slopes, severely eroded	150	325	15	35
Nason loam, 10 to 15 percent slopes, eroded	200	370	20	50
Nason loam, 15 to 25 percent slopes, eroded	---	---	--	--
Nason silty clay loam, 10 to 25 percent slopes, severely eroded	---	---	--	--
Pacolet sandy loam, 2 to 6 percent slopes, eroded	350	600	30	60
Pacolet sandy loam, 6 to 10 percent slopes, eroded	325	475	25	45
Pacolet sandy loam, 10 to 15 percent slopes, eroded	250	425	20	40
Pacolet sandy loam, 15 to 25 percent slopes, eroded	---	---	--	--
Pacolet sandy loam, 25 to 40 percent slopes, eroded	---	---	--	--
Pacolet clay loam, 2 to 6 percent slopes, severely eroded	200	400	18	35
Pacolet clay loam, 6 to 10 percent slopes, severely eroded	150	325	15	30
Pacolet clay loam, 10 to 15 percent slopes, severely eroded	---	---	--	--
Pacolet clay loam, 15 to 25 percent slopes, severely eroded	---	---	--	--
Pickens slaty silt loam, 10 to 25 percent slopes	---	---	--	--
Pickens slaty silt loam, 25 to 35 percent slopes	---	---	--	--
Rutlege loamy sand	---	---	--	--
Starr soils	---	---	50	100
Tatum loam, 10 to 15 percent slopes, eroded	250	370	20	40
Tatum loam, 15 to 25 percent slopes, eroded	---	---	--	--
Tatum silty clay loam, 10 to 25 percent slopes, severely eroded	---	---	--	--
Vaucluse and Blaney loamy sands, 2 to 6 percent slopes	150	400	15	40

See footnote at end of table.

CROPS UNDER TWO LEVELS OF MANAGEMENT--Continued

Grain sorghum		Oats		Soybeans		Fescue and white clover for pasture		Coastal bermudagrass for hay	
A	B	A	B	A	B	A	B	A	B
Bu.	Bu.	Bu.	Bu.	Bu.	Bu.	Cow-acre-days 1/	Cow-acre-days 1/	Tons	Tons
15	40	25	50	12	20	115	160	---	---
12	35	20	40	10	15	90	150	---	---
10	30	18	35	--	--	80	125	---	---
25	50	35	65	15	25	120	175	---	---
20	40	30	55	12	25	115	165	---	---
15	30	18	40	--	--	80	135	---	---
18	35	25	50	8	15	85	140	---	---
15	30	20	45	--	--	80	130	---	---
20	45	28	55	10	15	130	225	---	---
15	35	20	50	--	--	100	200	---	---
15	30	25	40	10	15	85	125	---	---
--	--	20	40	--	--	60	100	---	---
--	--	--	--	--	--	---	---	---	---
--	--	--	--	--	--	---	---	---	---
--	--	--	--	--	--	---	---	---	---
25	60	30	65	15	25	140	190	---	---
20	50	30	60	15	30	125	165	---	---
20	50	30	60	10	25	120	160	---	---
18	30	25	45	--	--	110	150	---	---
15	30	20	45	--	--	85	140	---	---
15	40	15	50	--	--	75	135	---	---
--	--	--	--	--	--	75	125	---	---
--	--	--	--	--	--	---	---	---	---
25	50	30	60	12	20	120	150	---	---
20	35	25	45	12	20	110	160	---	---
15	30	20	40	--	--	85	140	---	---
--	--	--	--	--	--	85	140	---	---
--	--	--	--	--	--	---	---	---	---
20	35	20	45	--	--	85	140	---	---
15	30	20	40	--	--	75	130	---	---
--	--	--	--	--	--	75	130	---	---
--	--	--	--	--	--	---	---	---	---
--	--	--	--	--	--	---	---	---	---
--	--	--	--	--	--	---	---	---	---
--	--	--	--	--	--	---	---	---	---
30	55	40	75	20	35	140	210	---	---
15	35	18	45	--	--	100	150	---	---
--	--	--	--	--	--	100	150	---	---
--	--	--	--	--	--	---	---	---	---
15	35	25	55	10	20	---	---	2.0	4.5

TABLE 3.--ESTIMATED AVERAGE YIELDS PER ACRE OF PRINCIPAL

Soil	Cotton (lint)		Corn	
	A	B	A	B
	Lb.	Lb.	Bu.	Bu.
Vaucluse and Blaney loamy sands, 6 to 10 percent slopes--	140	350	15	35
Vaucluse and Blaney loamy sands, 10 to 15 percent slopes-	---	---	--	--
Wagram sand, 2 to 6 percent slopes----------	275	500	25	55
Wagram sand, 6 to 10 percent slopes----------	260	475	25	50
Wagram sand, 10 to 15 percent slopes----------	250	370	20	35
Wedowee sandy loam, 10 to 25 percent slopes, eroded------	---	---	--	--
Wehadkee and Chewacla soils----------	---	---	25	50
Wickham sandy loam, 2 to 6 percent slopes, eroded--------	250	600	35	75
Wickham sandy loam, 6 to 10 percent slopes, eroded-------	200	500	30	60
Wickham sandy clay loam, 6 to 10 percent slopes, severely eroded----------	175	370	20	45
Wilkes sandy loam, 6 to 10 percent slopes, eroded--------	100	300	15	50
Wilkes sandy loam, 10 to 15 percent slopes, eroded-------	---	---	--	--
Wilkes sandy loam, 15 to 35 percent slopes----------	---	---	--	--
Worsham fine sandy loam----------	---	---	--	--

1/ Cow-acre-days is a term used to express the carrying capacity of pasture. It is the number of animal units carried per acre multiplied by the number of days the pasture is grazed during a single grazing season without injury to the sod. An acre of pasture that provides 30 days of grazing for two cows has a carrying capacity of 60 cow-acre-days.

CROPS UNDER TWO LEVELS OF MANAGEMENT--Continued

Grain sorghum		Oats		Soybeans		Fescue and white clover for pasture		Coastal bermudagrass for hay	
A	B	A	B	A	B	A	B	A	B
Bu.	Bu.	Bu.	Bu.	Bu.	Bu.	Cow-acre-days 1/	Cow-acre-days 1/	Tons	Tons
--	--	20	50	10	18	---	---	1.8	4.0
--	--	--	--	--	--	---	---	1.5	3.5
20	40	30	60	12	25	---	---	2.5	4.8
20	35	25	50	12	20	---	---	2.0	4.0
15	25	20	40	10	15	---	---	1.8	3.5
--	--	--	--	--	--	75	125	---	---
20	50	--	--	--	--	110	180	---	---
35	50	35	70	15	30	150	200	---	---
25	45	30	60	10	25	100	175	---	---
22	40	20	45	--	--	85	150	---	---
20	30	15	50	--	--	60	130	---	---
--	--	--	--	--	--	60	125	---	---
--	--	--	--	--	--	---	---	---	---
--	--	--	--	--	--	---	---	---	---

TABLE 4.--SUITABILITY OF THE SOILS FOR ELEMENTS

Soil	Elements of wildlife habitat			
	Grain and seed crops	Grasses and legumes	Wild herbaceous upland plants	Hardwood woody plants
Appling fine sandy loam, 2 to 6 percent slopes, eroded	Well suited	Well suited	Well suited	Well suited
Appling fine sandy loam, 6 to 10 percent slopes, eroded	Suited	Suited	Well suited	Well suited
Appling fine sandy loam, 10 to 15 percent slopes, eroded	Poorly suited	Suited	Suited	Suited
Appling sandy clay loam, 6 to 10 percent slopes, severely eroded	Poorly suited	Poorly suited	Suited	Suited
Appling sandy clay loam, 10 to 15 percent slopes, severely eroded	Unsuited	Unsuited	Poorly suited	Poorly suited
Appling and Chesterfield soils, 2 to 6 percent slopes, eroded	Well suited	Well suited	Well suited	Well suited
Appling and Chesterfield soils, 6 to 10 percent slopes, eroded	Suited	Suited	Well suited	Well suited
Appling and Chesterfield soils, 10 to 15 percent slopes, eroded	Poorly suited	Suited	Suited	Suited
Blaney sand, 6 to 10 percent slopes	Poorly suited	Poorly suited	Poorly suited	Suited
Blanton sand, 0 to 6 percent slopes	Poorly suited	Poorly suited	Poorly suited	Poorly suited
Blanton sand, 6 to 15 percent slopes	Unsuited	Unsuited	Unsuited	Poorly suited
Cecil fine sandy loam, 2 to 6 percent slopes, eroded	Well suited	Well suited	Well suited	Well suited
Cecil fine sandy loam, 6 to 10 percent slopes, eroded	Suited	Suited	Well suited	Well suited
Cecil fine sandy loam, 10 to 15 percent slopes, eroded	Poorly suited	Suited	Suited	Suited
Cecil fine sandy loam, 15 to 25 percent slopes, eroded	Unsuited	Unsuited	Suited	Suited
Cecil clay loam, 2 to 6 percent slopes, severely eroded	Suited	Suited	Suited	Suited
Cecil clay loam, 6 to 10 percent slopes, severely eroded	Unsuited	Unsuited	Suited	Suited
Cecil clay loam, 10 to 25 percent slopes, severely eroded	Unsuited	Unsuited	Poorly suited	Poorly suited
Chewacla soils	Poorly suited	Suited	Unsuited	Well suited
Colfax fine sandy loam, 2 to 6 percent slopes	Poorly suited	Suited	Unsuited	Well suited
Congaree soils	Suited	Suited	Suited	Well suited
Davidson clay loam, 2 to 6 percent slopes, eroded	Well suited	Well suited	Well suited	Well suited
Davidson clay loam, 6 to 10 percent slopes, eroded	Suited	Suited	Well suited	Well suited
Davidson clay loam, 10 to 15 percent slopes, eroded	Poorly suited	Suited	Suited	Suited
Durham loamy sand, 2 to 6 percent slopes	Well suited	Well suited	Well suited	Well suited
Durham loamy sand, 2 to 6 percent slopes, eroded	Well suited	Well suited	Well suited	Well suited
Durham loamy sand, 6 to 10 percent slopes, eroded	Suited	Suited	Well suited	Well suited
Enon loam, 2 to 6 percent slopes, eroded	Suited	Suited	Well suited	Well suited
Enon loam, 6 to 10 percent slopes, eroded	Suited	Suited	Well suited	Well suited
Enon loam, 10 to 25 percent slopes, eroded	Unsuited	Unsuited	Suited	Suited
Enon clay loam, 2 to 6 percent slopes, severely eroded	Poorly suited	Suited	Suited	Suited

OF WILDLIFE HABITAT AND KINDS OF WILDLIFE

Elements of wildlife habitat--Continued				Kinds of wildlife		
Coniferous woody plants	Wetland food and cover plants	Shallow water developments	Ponds	Openland	Woodland	Wetland
Well suited----	Unsuited------	Unsuited------	Suited-------	Well suited----	Well suited----	Unsuited.
Well suited----	Unsuited------	Unsuited------	Suited-------	Well suited----	Well suited----	Unsuited.
Suited---------	Unsuited------	Unsuited------	Suited-------	Suited---------	Well suited----	Unsuited.
Suited---------	Unsuited------	Unsuited------	Suited-------	Suited---------	Suited---------	Unsuited.
Poorly suited--	Unsuited------	Unsuited------	Unsuited-----	Poorly suited--	Poorly suited--	Unsuited.
Well suited----	Unsuited------	Unsuited------	Suited -----	Well suited----	Well suited----	Unsuited.
Well suited----	Unsuited------	Unsuited------	Suited-------	Well suited----	Well suited----	Unsuited.
Suited---------	Unsuited------	Unsuited------	Suited-------	Suited---------	Suited---------	Unsuited.
Suited---------	Unsuited------	Unsuited------	Poorly suited	Poorly suited--	Suited---------	Unsuited.
Suited---------	Unsuited------	Unsuited------	Unsuited-----	Poorly suited--	Poorly suited--	Unsuited.
Poorly suited--	Unsuited------	Unsuited------	Unsuited-----	Unsuited-------	Poorly suited--	Unsuited.
Well suited----	Unsuited------	Unsuited------	Suited-------	Well suited----	Well suited----	Unsuited.
Well suited----	Unsuited------	Unsuited------	Suited-------	Well suited----	Well suited----	Unsuited.
Suited---------	Unsuited------	Unsuited------	Suited-------	Suited---------	Well suited----	Unsuited.
Poorly suited--	Unsuited------	Unsuited------	Poorly suited	Poorly suited--	Suited---------	Unsuited.
Suited---------	Unsuited------	Unsuited------	Suited-------	Suited---------	Suited---------	Unsuited.
Suited---------	Unsuited------	Unsuited------	Suited-------	Suited---------	Suited---------	Unsuited.
Poorly suited--	Unsuited------	Unsuited------	Unsuited-----	Poorly suited--	Poorly suited--	Unsuited.
Poorly suited--	Well suited---	Well suited---	Unsuited-----	Poorly suited--	Well suited----	Well suited.
Suited---------	Suited--------	Suited--------	Poorly suited	Suited---------	Well suited----	Suited.
Suited---------	Suited--------	Well suited---	Poorly suited	Suited---------	Well suited----	Suited.
Well suited----	Unsuited------	Unsuited------	Suited-------	Well suited----	Well suited----	Unsuited.
Well suited----	Unsuited------	Unsuited------	Suited-------	Well suited----	Well suited----	Unsuited.
Suited---------	Unsuited------	Unsuited------	Suited-------	Suited---------	Well suited----	Unsuited.
Well suited----	Unsuited------	Unsuited------	Suited-------	Well suited----	Well suited----	Unsuited.
Well suited----	Unsuited------	Unsuited------	Suited-------	Well suited----	Well suited----	Unsuited.
Well suited----	Unsuited------	Unsuited------	Suited-------	Well suited----	Well suited----	Unsuited.
Suited---------	Unsuited------	Poorly suited-	Suited-------	Well suited----	Well suited----	Unsuited.
Suited---------	Unsuited------	Unsuited------	Suited-------	Well suited----	Well suited----	Unsuited.
Poorly suited--	Unsuited------	Unsuited------	Poorly suited	Unsuited-------	Suited---------	Unsuited.
Suited---------	Unsuited------	Unsuited------	Suited-------	Suited---------	Suited---------	Unsuited.

TABLE 4.--SUITABILITY OF THE SOILS FOR ELEMENTS

Soil	Elements of wildlife habitat			
	Grain and seed crops	Grasses and legumes	Wild herbaceous upland plants	Hardwood woody plants
Enon clay loam, 6 to 15 percent slopes, severely eroded	Unsuited	Unsuited	Poorly suited	Suited
Eustis loamy sand, 0 to 6 percent slopes	Poorly suited	Poorly suited	Poorly suited	Poorly suited
Eustis loamy sand, 6 to 15 percent slopes	Unsuited	Unsuited	Unsuited	Poorly suited
Georgeville silt loam, 2 to 6 percent slopes, eroded	Well suited	Well suited	Well suited	Well suited
Georgeville silt loam, 6 to 10 percent slopes, eroded	Suited	Suited	Well suited	Well suited
Georgeville silty clay loam, 2 to 6 percent slopes, severely eroded	Suited	Suited	Suited	Well suited
Georgeville silty clay loam, 6 to 10 percent slopes, severely eroded	Poorly suited	Suited	Suited	Suited
Gills silt loam, 2 to 6 percent slopes	Suited	Suited	Suited	Suited
Gills silt loam, 2 to 6 percent slopes, eroded	Poorly suited	Poorly suited	Suited	Poorly suited
Gills silt loam, 6 to 10 percent slopes, eroded	Unsuited	Unsuited	Suited	Poorly suited
Goldston-Pickens complex, 2 to 6 percent slopes	Poorly suited	Poorly suited	Suited	Suited
Goldston-Pickens complex, 6 to 10 percent slopes	Unsuited	Unsuited	Poorly suited	Poorly suited
Helena fine sandy loam, 2 to 6 percent slopes	Suited	Suited	Well suited	Well suited
Helena fine sandy loam, 2 to 6 percent slopes, eroded	Suited	Suited	Well suited	Well suited
Helena fine sandy loam, 6 to 10 percent slopes, eroded	Poorly suited	Suited	Suited	Suited
Helena fine sandy loam, 2 to 10 percent slopes, severely eroded	Poorly suited	Poorly suited	Poorly suited	Suited
Herndon silt loam, 2 to 6 percent slopes, eroded	Suited	Suited	Suited	Well suited
Herndon silt loam, 6 to 10 percent slopes, eroded	Poorly suited	Suited	Suited	Well suited
Herndon silt loam, 10 to 15 percent slopes, eroded	Unsuited	Suited	Suited	Suited
Herndon silty clay loam, 2 to 6 percent slopes, severely eroded	Unsuited	Poorly suited	Poorly suited	Suited
Herndon silty clay loam, 6 to 10 percent slopes, severely eroded	Unsuited	Poorly suited	Poorly suited	Suited
Iredell complex, 2 to 6 percent slopes, eroded	Suited	Suited	Suited	Suited
Iredell complex, 6 to 10 percent slopes, eroded	Poorly suited	Suited	Suited	Suited
Lockhart gravelly sandy loam, 2 to 6 percent slopes	Poorly suited	Poorly suited	Suited	Suited
Lockhart gravelly sandy loam, 6 to 10 percent slopes	Unsuited	Poorly suited	Suited	Suited
Lockhart gravelly sandy loam, 10 to 15 percent slopes	Unsuited	Unsuited	Poorly suited	Poorly suited
Lockhart gravelly sandy loam, 15 to 25 percent slopes	Unsuited	Unsuited	Poorly suited	Poorly suited
Lockhart gravelly sandy loam, 25 to 40 percent slopes	Unsuited	Unsuited	Poorly suited	Poorly suited
Masada and Altavista soils, 2 to 6 percent slopes	Well suited	Well suited	Well suited	Well suited

OF WILDLIFE HABITAT AND KINDS OF WILDLIFE--Continued

Elements of wildlife habitat--Continued				Kinds of wildlife		
Coniferous woody plants	Wetland food and cover plants	Shallow water developments	Ponds	Openland	Woodland	Wetland
Poorly suited--	Unsuited-----	Unsuited------	Poorly suited-	Unsuited------	Suited---------	Unsuited.
Suited---------	Unsuited-----	Unsuited------	Poorly suited-	Poorly suited-	Poorly suited--	Unsuited.
Poorly suited--	Unsuited-----	Unsuited------	Poorly suited-	Unsuited------	Poorly suited--	Unsuited.
Well suited----	Unsuited-----	Unsuited------	Suited--------	Well suited---	Well suited----	Unsuited.
Well suited----	Unsuited-----	Unsuited------	Suited--------	Suited--------	Well suited----	Unsuited.
Well suited----	Unsuited-----	Unsuited------	Suited--------	Suited--------	Well suited----	Unsuited.
Suited---------	Unsuited-----	Unsuited------	Suited--------	Suited--------	Well suited----	Unsuited.
Poorly suited--	Unsuited-----	Unsuited------	Poorly suited-	Suited--------	Suited---------	Unsuited.
Poorly suited--	Unsuited-----	Unsuited------	Poorly suited-	Poorly suited-	Suited---------	Unsuited.
Poorly suited--	Unsuited-----	Unsuited------	Unsuited------	Unsuited------	Suited---------	Unsuited.
Poorly suited--	Unsuited-----	Unsuited------	Unsuited------	Poorly suited-	Suited---------	Unsuited.
Poorly suited--	Unsuited-----	Unsuited------	Unsuited------	Unsuited------	Suited---------	Unsuited.
Suited---------	Unsuited-----	Unsuited------	Suited--------	Well suited---	Well suited----	Unsuited.
Suited---------	Unsuited-----	Unsuited------	Suited--------	Well suited---	Well suited----	Unsuited.
Suited---------	Unsuited-----	Unsuited------	Suited--------	Suited--------	Well suited----	Unsuited.
Suited---------	Unsuited-----	Unsuited------	Suited--------	Poorly suited-	Suited---------	Unsuited.
Well suited----	Unsuited-----	Unsuited------	Suited--------	Suited--------	Suited---------	Unsuited.
Well suited----	Unsuited-----	Unsuited------	Suited--------	Suited--------	Suited---------	Unsuited.
Suited---------	Unsuited-----	Unsuited------	Suited--------	Suited--------	Suited---------	Unsuited.
Suited---------	Unsuited-----	Unsuited------	Suited--------	Poorly suited-	Suited---------	Unsuited.
Suited---------	Unsuited-----	Unsuited------	Suited--------	Poorly suited-	Suited---------	Unsuited.
Suited---------	Unsuited-----	Poorly suited-	Poorly suited-	Suited--------	Suited---------	Unsuited.
Poorly suited--	Unsuited-----	Unsuited------	Suited--------	Suited--------	Suited---------	Unsuited.
Suited---------	Unsuited-----	Unsuited------	Poorly suited-	Poorly suited-	Suited---------	Unsuited.
Suited---------	Unsuited-----	Unsuited------	Poorly suited-	Poorly suited-	Suited---------	Unsuited.
Poorly suited--	Unsuited-----	Unsuited------	Poorly suited-	Unsuited------	Poorly suited--	Unsuited.
Poorly suited--	Unsuited-----	Unsuited------	Unsuited------	Unsuited------	Poorly suited--	Unsuited.
Poorly suited--	Unsuited-----	Unsuited------	Unsuited------	Unsuited------	Poorly suited--	Unsuited.
Well suited----	Unsuited-----	Unsuited------	Suited--------	Well suited---	Well suited----	Unsuited.

TABLE 4.--SUITABILITY OF THE SOILS FOR ELEMENTS

Soil	Elements of wildlife habitat			
	Grain and seed crops	Grasses and legumes	Wild herbaceous upland plants	Hardwood woody plants
Mecklenburg fine sandy loam, 2 to 6 percent slopes, eroded	Suited	Suited	Well suited	Well suited
Mecklenburg fine sandy loam, 6 to 10 percent slopes, eroded	Suited	Suited	Well suited	Well suited
Mecklenburg fine sandy loam, 10 to 15 percent slopes, eroded	Poorly suited	Suited	Suited	Suited
Mecklenburg clay loam, 6 to 10 percent slopes, severely eroded	Unsuited	Poorly suited	Poorly suited	Suited
Nason loam, 10 to 15 percent slopes, eroded	Poorly suited	Poorly suited	Poorly suited	Suited
Nason loam, 15 to 25 percent slopes, eroded	Unsuited	Unsuited	Poorly suited	Poorly suited
Nason silty clay loam, 10 to 25 percent slopes, severely eroded	Unsuited	Unsuited	Poorly suited	Poorly suited
Pacolet sandy loam, 2 to 6 percent slopes, eroded	Suited	Suited	Suited	Suited
Pacolet sandy loam, 6 to 10 percent slopes, eroded	Suited	Suited	Suited	Suited
Pacolet sandy loam, 10 to 15 percent slopes, eroded	Unsuited	Poorly suited	Suited	Suited
Pacolet sandy loam, 15 to 25 percent slopes, eroded	Unsuited	Unsuited	Poorly suited	Suited
Pacolet sandy loam, 25 to 40 percent slopes, eroded	Unsuited	Unsuited	Poorly suited	Poorly suited
Pacolet clay loam, 2 to 6 percent slopes, severely eroded	Poorly suited	Poorly suited	Poorly suited	Poorly suited
Pacolet clay loam, 6 to 10 percent slopes, severely eroded	Unsuited	Poorly suited	Poorly suited	Poorly suited
Pacolet clay loam, 10 to 15 percent slopes, severely eroded	Unsuited	Unsuited	Unsuited	Poorly suited
Pacolet clay loam, 15 to 25 percent slopes, severely eroded	Unsuited	Unsuited	Unsuited	Poorly suited
Pickens slaty silt loam, 10 to 25 percent slopes	Unsuited	Unsuited	Poorly suited	Poorly suited
Pickens slaty silt loam, 25 to 35 percent slopes	Unsuited	Unsuited	Poorly suited	Poorly suited
Rutlege loamy sand	Unsuited	Unsuited	Unsuited	Suited
Starr soils	Suited	Suited	Poorly suited	Well suited
Tatum loam, 10 to 15 percent slopes, eroded	Poorly suited	Poorly suited	Suited	Suited
Tatum loam, 15 to 25 percent slopes, eroded	Unsuited	Unsuited	Poorly suited	Suited
Tatum silty clay loam, 10 to 25 percent slopes, severely eroded	Unsuited	Unsuited	Poorly suited	Poorly suited
Vaucluse and Blaney loamy sands, 2 to 6 percent slopes	Suited	Suited	Suited	Suited
Vaucluse and Blaney loamy sands, 6 to 10 percent slopes	Poorly suited	Poorly suited	Suited	Suited
Vaucluse and Blaney loamy sands, 10 to 15 percent slopes	Unsuited	Unsuited	Poorly suited	Poorly suited
Wagram sand, 2 to 6 percent slopes	Suited	Suited	Suited	Suited
Wagram sand, 6 to 10 percent slopes	Poorly suited	Poorly suited	Suited	Suited
Wagram sand, 10 to 15 percent slopes	Unsuited	Unsuited	Poorly suited	Poorly suited

OF WILDLIFE HABITAT AND KINDS OF WILDLIFE--Continued

Elements of wildlife habitat--Continued				Kinds of wildlife		
Coniferous woody plants	Wetland food and cover plants	Shallow water developments	Ponds	Openland	Woodland	Wetland
Suited--------	Unsuited-----	Unsuited-----	Suited--------	Well suited---	Well suited----	Unsuited.
Suited--------	Unsuited-----	Unsuited-----	Suited--------	Well suited---	Well suited----	Unsuited.
Suited--------	Unsuited-----	Unsuited-----	Suited--------	Suited--------	Well suited----	Unsuited.
Suited--------	Unsuited-----	Unsuited-----	Suited--------	Poorly suited-	Suited---------	Unsuited.
Suited--------	Unsuited-----	Unsuited-----	Poorly suited-	Poorly suited-	Suited---------	Unsuited.
Poorly suited-	Unsuited-----	Unsuited-----	Unsuited------	Unsuited------	Poorly suited--	Unsuited.
Poorly suited-	Unsuited-----	Unsuited-----	Unsuited------	Unsuited------	Poorly suited--	Unsuited.
Suited--------	Unsuited-----	Unsuited-----	Suited--------	Suited--------	Suited---------	Unsuited.
Suited--------	Unsuited-----	Unsuited-----	Suited--------	Suited--------	Suited---------	Unsuited.
Suited--------	Unsuited-----	Unsuited-----	Poorly suited-	Poorly suited-	Suited---------	Unsuited.
Poorly suited-	Unsuited-----	Unsuited-----	Unsuited------	Unsuited------	Suited---------	Unsuited.
Poorly suited-	Unsuited-----	Unsuited-----	Unsuited------	Unsuited------	Poorly suited--	Unsuited.
Poorly suited-	Unsuited-----	Unsuited-----	Suited--------	Poorly suited-	Poorly suited--	Unsuited.
Poorly suited-	Unsuited-----	Unsuited-----	Poorly suited-	Poorly suited-	Poorly suited--	Unsuited.
Poorly suited-	Unsuited-----	Unsuited-----	Unsuited------	Unsuited------	Poorly suited--	Unsuited.
Poorly suited-	Unsuited-----	Unsuited-----	Unsuited------	Unsuited------	Poorly suited--	Unsuited.
Unsuited------	Unsuited-----	Unsuited-----	Unsuited------	Unsuited------	Poorly suited--	Unsuited.
Unsuited------	Unsuited-----	Unsuited-----	Unsuited------	Unsuited------	Poorly suited--	Unsuited.
Unsuited------	Suited-------	Suited-------	Unsuited------	Unsuited------	Suited---------	Suited.
Poorly suited-	Suited-------	Well suited--	Unsuited------	Suited--------	Well suited----	Suited.
Suited--------	Unsuited-----	Unsuited-----	Suited--------	Poorly suited-	Suited---------	Unsuited.
Suited--------	Unsuited-----	Unsuited-----	Unsuited------	Poorly suited-	Suited---------	Unsuited.
Poorly suited-	Unsuited-----	Unsuited-----	Unsuited------	Unsuited------	Poorly suited--	Unsuited.
Suited--------	Unsuited-----	Unsuited-----	Suited--------	Suited--------	Suited---------	Unsuited.
Suited--------	Unsuited-----	Unsuited-----	Poorly suited-	Poorly suited-	Suited---------	Unsuited.
Poorly suited-	Unsuited-----	Unsuited-----	Unsuited------	Poorly suited-	Poorly suited--	Unsuited.
Suited--------	Unsuited-----	Unsuited-----	Suited--------	Suited--------	Suited---------	Unsuited.
Suited--------	Unsuited-----	Unsuited-----	Suited--------	Poorly suited-	Suited---------	Unsuited.
Poorly suited-	Unsuited-----	Unsuited-----	Unsuited------	Poorly suited-	Poorly suited--	Unsuited.

TABLE 4.--SUITABILITY OF THE SOILS FOR ELEMENTS

Soil	Elements of wildlife habitat			
	Grain and seed crops	Grasses and legumes	Wild herbaceous upland plants	Hardwood woody plants
Wedowee sandy loam, 10 to 25 percent slopes, eroded	Unsuited	Unsuited	Poorly suited	Poorly suited-
Wehadkee and Chewacla soils	Unsuited	Poorly suited	Unsuited	Well suited
Wickham sandy loam, 2 to 6 percent slopes, eroded	Well suited	Well suited	Well suited	Well suited
Wickham sandy loam, 6 to 10 percent slopes, eroded	Suited	Suited	Well suited	Well suited
Wickham sandy clay loam, 6 to 10 percent slopes, severely eroded	Poorly suited	Poorly suited	Suited	Suited
Wilkes sandy loam, 6 to 10 percent slopes, eroded	Unsuited	Poorly suited	Poorly suited	Poorly suited-
Wilkes sandy loam, 10 to 15 percent slopes, eroded	Unsuited	Unsuited	Poorly suited	Poorly suited-
Wilkes sandy loam, 15 to 35 percent slopes	Unsuited	Unsuited	Poorly suited	Poorly suited-
Worsham fine sandy loam	Unsuited	Poorly suited	Unsuited	Well suited

OF WILDLIFE HABITAT AND KINDS OF WILDLIFE--Continued

Elements of wildlife habitat--Continued				Kinds of wildlife		
Coniferous woody plants	Wetland food and cover plants	Shallow water developments	Ponds	Openland	Woodland	Wetland
Poorly suited-- Unsuited-------	Unsuited----- Well suited--	Unsuited----- Well suited--	Unsuited------ Unsuited------	Unsuited------ Unsuited------	Poorly suited-- Well suited----	Unsuited. Well suited.
Well suited----	Unsuited-----	Unsuited-----	Suited--------	Well suited---	Well suited----	Unsuited.
Well suited----	Unsuited-----	Unsuited-----	Suited--------	Well suited---	Well suited----	Unsuited.
Suited---------	Unsuited-----	Unsuited-----	Suited--------	Suited--------	Suited---------	Unsuited.
Poorly suited--	Unsuited-----	Unsuited-----	Poorly suited-	Poorly suited-	Poorly suited--	Unsuited.
Poorly suited--	Unsuited-----	Unsuited-----	Unsuited------	Unsuited------	Poorly suited--	Unsuited.
Poorly suited-- Poorly suited--	Unsuited----- Well suited--	Unsuited----- Well suited--	Unsuited------ Poorly suited-	Unsuited------ Unsuited------	Poorly suited-- Well suited----	Unsuited. Well suited.

Ponds are located where water of suitable depth and quality can be impounded for fish production.

Openland wildlife are quail, dove, meadowlark, field sparrow, cottontail rabbit, fox, and other mammals and birds that normally live in areas used for crops, in pastures and meadows, and in other openland areas where grasses, herbs, and shrubby plants grow.

Woodland wildlife are woodcock, thrush, vireo, wild turkey, squirrel, deer, raccoon, and other mammals and birds that normally live in wooded areas where hardwood trees and shrubs and coniferous trees grow.

Wetland wildlife are mink, ducks, geese, rail, heron, shore birds, and other birds and mammals that live in wet areas, marshes, and swamps.

Woodland[4/]

Approximately 7 of every 10 acres in Lancaster County is woodland. All but approximately 1,000 acres of productive reserved woodland is commercial. Forest industries own approximately 10 percent of the woodland. About 4,000 acres is publicly owned. The rest is privately owned.

This section contains currently available information about the soils of Lancaster County and the establishment, growth, management, and harvesting of wood crops. This information is for the use of foresters, farmers, woodland owners, and woodland managers.

The field information needed to prepare this woodland section was gathered by teams of foresters and soil scientists, cooperating representatives of the wood products industry, and Federal and State agencies.

About 57 percent of the commercial woodland is the loblolly-shortleaf pine forest type, 18 percent is oak-pine, 22 percent is oak-hickory, and 4 percent is elm-ash and cottonwood (6). During the period 1968-69, more than 1,200 acres was planted to pines; more than 33,000 acres has been planted since 1929 (11).

Loblolly pine is preferred for planting; slash and longleaf pines are planted occasionally. Virginia pine grows on some of the severely eroded soils and is effective in controlling erosion. Yellow-poplar, sweetgum, and other hardwoods grow in coves and drainageways. Bottom-land hardwoods grow on flood plains.

Rating Soils for Woodland Use

In table 5 the soils are rated according to their suitability for trees. The column headings in table 5 are explained in the following paragraphs.

A woodland group is made up of kinds of soil that are capable of producing similar kinds of wood crops, that need similar management to produce these crops, and that have about the same potential productivity. This column shows the woodland group designation for each soil in the county.

The column headed "Trees" lists some of the commercially important trees that are suited to the soil specified. These are the trees woodland managers generally favor in intermediate or improvement cuttings after considering the form and vigor of individual trees. Priority is influenced by local marketability and quality of the wood products.

Site index is the average height that dominant trees attain at a specified age. For cottonwood it is age 30, for sycamore it is age 35, and for all other species, age 50.

The column headed "Trees suitable for planting" includes some trees that do not normally occur in native stands on the designated soil or in this physiographic area.

Erosion hazard indicates the extent to which erosion is a management concern following cutting, or where the soil is exposed along roads, trails, firebreaks, or log-yarding areas. A rating of slight indicates that erosion control practices are not required. A rating of moderate indicates that some attention must be given to preventing soil erosion. A rating of severe indicates that intensive treatment or special equipment and methods of operation should be planned to minimize soil erosion. The potential hazard of erosion is based on slope, soil depth and erodibility, and soil-loss tolerance.

Equipment restriction refers to limitations in the use of equipment for managing or harvesting the tree crop. A rating of slight indicates that equipment use is seldom limited in kind or time of year. A rating of moderate indicates a need for modified equipment or seasonal restrictions because of slope, stones, obstructions, soil wetness, flooding, or overflow. A rating of severe indicates the need for specialized equipment because of one or more of the restricting factors listed above.

Seedling mortality indicates the degree of expected seedling mortality during the first two growing seasons after planting or seeding. Normal rainfall, adequate site preparation, good planting stock, proper planting methods, and appropriate protection and cultivation are assumed. A rating of slight indicates that unsatisfactory survival is likely on less than 25 percent of the area. A rating of moderate indicates that unsatisfactory survival is likely on 25 to 50 percent of the area planted. A rating of severe indicates that unsatisfactory survival is likely on more than 50 percent of the area.

Soils in each woodland group are described in the following paragraphs.

1o7 Deep, nearly level soils along larger streams. These soils have very high potential productivity and no serious limitations. They are suited to broadleaf and needleleaf trees.

1w8 Deep, seasonally wet, alluvial soils on bottom land. These soils have very high potential productivity, moderate equipment restrictions, and slight to moderate seedling mortality.

[4/] By GEORGE E. SMITH, JR., woodland conservationist, Soil Conservation Service.

They are suited to broadleaf and needleleaf trees.

1w9 Deep, nearly level, poorly drained soils along flood plains. These soils have very high potential productivity, severe equipment restrictions, and moderate to severe seedling mortality. They are suited to broadleaf and needleleaf trees.

2w3 Very poorly drained loamy sands that have high potential productivity, but severe equipment restrictions and seedling mortality unless surface drainage is adequate. They are best suited to needleleaf trees.

2w8 Seasonally wet soils on stream terraces and along small drainageways. These soils have high potential productivity, moderate equipment limitations, and slight to moderate seedling mortality. They are suited to broadleaf and needleleaf trees.

3o1 Loamy sands that have moderately high potential productivity and no serious limitations. They are best suited to needleleaf trees.

3o7 Deep to moderately deep, well-drained soils. These soils have moderately high potential productivity and no serious limitations. They are suited to broadleaf and needleleaf trees.

3r8 Deep to moderately deep, moderately steep to steep, well-drained soils on uplands. These soils have moderately high potential productivity, moderate equipment restrictions, and a moderate erosion hazard. They are suited to broadleaf and needleleaf trees.

3w8 Moderately deep to deep, seasonally wet soils along drainageways. These soils have moderately high potential productivity, moderate equipment restrictions, and slight to moderate seedling mortality. They are suited to broadleaf and needleleaf trees.

3s2 Deep, well-drained to somewhat excessively drained, sandy soils. These soils have moderately high potential productivity, moderate equipment restrictions, and moderate seedling mortality. They are best suited to needleleaf trees.

4o1 Shallow to moderately deep soils. These soils have moderate potential productivity and no serious limitations. They are best suited to needleleaf trees.

4r2 Shallow to moderately deep, moderately steep to steep, well-drained soils. These soils have moderate potential productivity, a moderate erosion hazard, and moderate equipment restrictions. They are best suited to needleleaf trees.

4c2 Moderately deep soils that have a very plastic clay subsoil. These soils have moderate potential productivity, moderate equipment restrictions, and moderate seedling mortality. They are best suited to needleleaf trees.

4c2e Deep to moderately deep, severely eroded, clayey soils. These soils have moderate potential productivity, a moderate erosion hazard, moderate equipment restrictions, and slight to moderate seedling mortality. They are best suited to needleleaf trees.

4c3e Deep to moderately deep, moderately steep to steep, severely eroded, clayey soils. These soils have moderate potential productivity, a severe erosion hazard, severe equipment restrictions, and moderate seedling mortality. They are best suited to needleleaf trees.

4d2 Somewhat excessively drained, shallow soils. These soils have moderate potential productivity, slight to moderate equipment restrictions, a slight to moderate erosion hazard, moderate seedling mortality, and a moderate windthrow hazard. They are best suited to pines.

4d3 Somewhat excessively drained, shallow soils. These soils have moderate potential productivity, moderate to severe equipment restrictions, a severe hazard of erosion, moderate seedling mortality, and a moderate windthrow hazard. They are best suited to pines.

4s2 Deep sandy soils. These soils have moderate potential productivity, moderate equipment restrictions and moderate seedling mortality. They are best suited to needleleaf trees.

5w2 Seasonally wet soils that have a plastic clay subsoil. They have low potential productivity, a slight erosion hazard, moderate equipment restrictions, and slight seedling mortality.

Merchantable volumes for loblolly pine plantations by site indexes at 25 years are shown in figure 2 (5). Growth of other southern hardwoods is shown in figures 3 and 4 (8). See table 6 for recommended cutting and estimated yields of managed upland hardwoods (4).

TABLE 5.--WOODLAND GROUPS, WOOD CROPS, AND FACTORS IN MANAGEMENT

[An asterisk in the first column indicates that at least one mapping unit in this series is made up of two or more kinds of soil. The soils in such mapping units may have different properties and limitations, and for this reason it is necessary to follow carefully the instructions for referring to other series that appear in the first column of this table]

Soil series and map symbols	Woodland group	Potential productivity		Trees suitable for planting	Erosion hazard	Equipment restriction	Seedling mortality
		Trees	Average site index and standard deviation				
			Feet				
Altavista---------- Mapped only with Masada soils.	2w8	Loblolly pine-----	91±9	Black walnut, loblolly pine, slash pine, sweetgum, sycamore, yellow-poplar, cherrybark oak, eastern white pine.	Slight---	Moderate-	Slight.
		Longleaf pine-----	84				
		Shortleaf pine----	77				
		Sweetgum----------	84				
		White oak---------	77				
*Appling:							
ApB2, ApC2, AtB2, AtC2. For Chesterfield part of AtB2 and AtC2, see Chesterfield series.	3o7	Black oak---------	70	Eastern redcedar, loblolly pine, slash pine, yellow-poplar.	Slight---	Slight---	Slight.
		Eastern white pine----------	80				
		Loblolly pine-----	81±7				
		Longleaf pine-----	71				
		Scarlet oak-------	68				
		Shortleaf pine----	65±6				
ApD2, AtD2-------- For Chesterfield part of AtD2, see Chesterfield series.	3o7	Southern red oak--	76	Eastern redcedar, loblolly pine, slash pine, yellow-poplar.	Slight---	Slight---	Slight.
		Virginia pine-----	74±7				
		White oak---------	71				
		Yellow-poplar-----	90				
AsC3, AsD3--------	4c2e	Loblolly pine-----	70	Eastern redcedar, loblolly pine, slash pine, Virginia pine.	Moderate-	Moderate-	Moderate.
		Shortleaf pine----	55				
Blaney: BlC--------	4s2	Loblolly pine-----	73±5	Longleaf pine, slash pine.	Slight---	Moderate-	Moderate.
		Slash pine--------	75				
		Longleaf pine-----	61±6				
Blanton: BnB, BnC--	3s2	Loblolly pine-----	80	Slash pine, longleaf pine.	Slight---	Moderate-	Moderate.
		Longleaf pine-----	70±4				
		Slash pine--------	80				

TABLE 5.--WOODLAND GROUPS, WOOD CROPS, AND FACTORS IN MANAGEMENT--Continued

Soil series and map symbols	Woodland group	Potential productivity		Trees suitable for planting	Erosion hazard	Equipment restriction	Seedling mortality
		Trees	Average site index and standard deviation				
			Feet				
Cecil:							
CcB2, CcC2, CcD2---	3o7	Eastern white pine----------	80	Eastern redcedar, loblolly pine, slash pine, yellow-poplar.	Slight---	Slight---	Slight.
		Loblolly pine-----	80+8				
		Shortleaf pine----	67±7				
		Virginia pine-----	73±4				
		Black oak---------	66				
		Northern red oak--	82+6				
		Post oak----------	65±9				
		Scarlet oak-------	80±3				
		Southern red oak--	81±10				
		Sweetgum----------	78±6				
		White oak---------	76±7				
		Yellow-poplar-----	86±8				
CeB3, CeC3---------	4c2e	Loblolly pine-----	72+6	Eastern redcedar, loblolly pine, slash pine, Virginia pine.	Moderate-	Moderate-	Moderate.
		Shortleaf pine----	66±6				
		Virginia pine-----	65				
CcE2----------	3r8	Eastern white pine----------	80	Eastern redcedar, loblolly pine, slash pine, yellow-poplar.	Moderate-	Moderate-	Slight.
		Loblolly pine-----	80+8				
		Shortleaf pine----	67±7				
		Virginia pine-----	73±4				
		Black oak---------	66				
		Northern red oak--	82+6				
		Post oak----------	65±9				
		Scarlet oak-------	80±3				
		Southern red oak--	81±10				
		Sweetgum----------	78±6				
		White oak---------	76±7				
		Yellow-poplar-----	86±8				
CeE3----------	4c3e	Loblolly pine-----	72+6	Eastern redcedar, loblolly pine, slash pine, Virginia pine.	Severe---	Severe---	Moderate.
		Shortleaf pine----	66±6				
		Virginia pine-----	65				
Chesterfield--------- Mapped only with Appling soils.	3o7	Loblolly pine-----	80	Eastern redcedar, loblolly pine, longleaf pine, slash pine, yellow-poplar.	Slight---	Slight---	Slight.
		Shortleaf pine----	70				
		Longleaf pine-----	70				
		Slash pine--------	80				
Chewacla: Ch--------	1w8	Cottonwood--------	100	Eastern cottonwood, loblolly pine, slash pine, sycamore, sweetgum, yellow-poplar, cherrybark oak.	Slight---	Moderate-	Moderate.
		Green ash---------	97				
		Loblolly pine-----	96+6				
		Sugarberry--------	80				
		Sweetgum----------	97±13				
		Sycamore----------	90				
		Water oak---------	86±11				
		Yellow-poplar-----	104±8				

TABLE 5.--WOODLAND GROUPS, WOOD CROPS, AND FACTORS IN MANAGEMENT--Continued

Soil series and map symbols	Woodland group	Potential productivity		Trees suitable for planting	Erosion hazard	Equipment restriction	Seedling mortality
		Trees	Average site index and standard deviation				
			Feet				
Colfax: ClB--------	3w8	Loblolly pine-----	80	Loblolly pine, slash pine, Virginia pine, sweetgum.	Slight---	Moderate-	Slight.
		Shortleaf pine----	70				
		Sweetgum----------	81				
		Yellow-poplar-----	80				
Congaree: Co-------	1o7	Black cherry------	90	Black walnut, cherrybark oak, eastern cottonwood, loblolly pine, slash pine, sycamore, sweetgum, yellow-poplar.	Slight---	Slight---	Slight.
		Black walnut------	100				
		Cottonwood--------	107				
		Green ash---------	95				
		Loblolly pine-----	90				
		Sweetgum----------	100±9				
		Sycamore----------	89				
		Water oak---------	88				
		Yellow-poplar-----	107±11				
Davidson: DaB2, DaC2, DaD2.	3o7	Loblolly pine-----	81±7	Loblolly pine, slash pine, yellow-poplar.	Slight---	Slight---	Slight.
		Shortleaf pine----	68±10				
		Northern red oak--	86				
		White oak---------	71±9				
		Yellow-poplar-----	-----				
Durham: DvB, DvB2, DvC2.	3o7	Loblolly pine-----	79±11	Loblolly pine, slash pine, yellow-poplar.	Slight---	Slight---	Slight.
		Post oak----------	70				
		Shortleaf pine----	72				
		Southern red oak--	80				
		Sweetgum----------	80				
Enon:							
EnB2, EnC2--------	4o1	Loblolly pine-----	73±7	Eastern redcedar, loblolly pine, slash pine.	Slight---	Slight---	Slight.
		Shortleaf pine----	63±7				
		Virginia pine-----	63				
		Post oak----------	55				
		Sweetgum----------	78				
		White oak---------	69±8				
		Yellow-poplar-----	-----				
EnE2--------------	4r2	Loblolly pine-----	73±7	Eastern redcedar, loblolly pine, slash pine.	Moderate-	Moderate-	Slight.
		Shortleaf pine----	63±7				
		Virginia pine-----	63				
		Post oak----------	55				
		Sweetgum----------	78				
		White oak---------	69±8				
		Yellow-poplar-----	-----				
EoB3, EoD3--------	4c2e	Loblolly pine-----	71±5	Eastern redcedar, loblolly pine, slash pine, Virginia pine.	Moderate-	Moderate-	Moderate.
		Shortleaf pine----	60				
		Virginia pine-----	65				
Eustis: EuB, EuD---	3s2	Loblolly pine-----	84±4	Longleaf pine, slash pine.	Slight---	Moderate-	Moderate.
		Slash pine--------	82				
		Longleaf pine-----	65				

TABLE 5.--WOODLAND GROUPS, WOOD CROPS, AND FACTORS IN MANAGEMENT--Continued

Soil series and map symbols	Woodland group	Potential productivity		Trees suitable for planting	Erosion hazard	Equipment restriction	Seedling mortality
		Trees	Average site index and standard deviation				
			Feet				
Georgeville:							
GeB2, GeC2---------	3o7	Loblolly pine-----	81+8	Loblolly pine, slash pine, Virginia pine, yellow-poplar.	Slight---	Slight---	Slight.
		Longleaf pine-----	67				
		Scarlet oak-------	70				
		Shortleaf pine----	63+5				
		Southern red oak--	67				
		Sweetgum----------	67				
		White oak---------	69+7				
		Virginia pine-----	65				
GgB3, GgC3---------	4c2e	Loblolly pine-----	70	Loblolly pine, Virginia pine.	Moderate-	Moderate-	Moderate.
		Shortleaf pine----	60				
		Virginia pine-----	60				
Gills: GlB, GlB2, GlC2.	5w2	Shortleaf pine----	43	Eastern redcedar, loblolly pine, Virginia pine.	Slight---	Moderate-	Slight.
*Goldston: GpB, GpC- For Pickens part, see Pickens series.	4o1	Loblolly pine-----	73+9	Eastern redcedar, loblolly pine, slash pine, Virginia pine.	Slight---	Slight---	Slight.
		Longleaf pine-----	68				
		Shortleaf pine----	63+7				
		Southern red oak--	66				
		White oak---------	69				
Gullied land: GuC, GuF, GvC, GwF. Not suited to woodland use.							
Helena: HaB, HaB2, HaC2, HaC3.	3w8	Loblolly pine-----	80+14	Loblolly pine, slash pine, Virginia pine, yellow-poplar.	Slight to moder- ate.	Slight to moder- ate.	Slight.
		Shortleaf pine----	63				
		White oak---------	64				
		Yellow-poplar-----	87				
Herndon:							
HdB2, HdC2, HdD2---	3o7	Loblolly pine-----	80+8	Loblolly pine, slash pine, Virginia pine, yellow-poplar.	Slight---	Slight---	Slight.
		Post oak----------	63				
		Shortleaf pine----	61+5				
		Southern red oak--	72				
		White oak---------	65+11				
		Yellow-poplar-----	91				
HeB3, HeC3---------	4c2e	Loblolly pine-----	70	Loblolly pine, slash pine, Virginia pine.	Moderate-	Moderate-	Moderate.
		Shortleaf pine----	50				
Iredell: IrB2, IrC2-	4c2	Loblolly pine-----	67+5	Eastern redcedar, loblolly pine.	Slight---	Moderate-	Moderate.
		Longleaf pine-----	55				
		Post oak----------	44				
		Shortleaf pine----	58+2				
		White oak---------	47				

TABLE 5.--WOODLAND GROUPS, WOOD CROPS, AND FACTORS IN MANAGEMENT--Continued

Soil series and map symbols	Woodland group	Potential productivity		Trees suitable for planting	Erosion hazard	Equipment restriction	Seedling mortality
		Trees	Average site index and standard deviation				
			Feet				
Lockhart:							
LgB, LgC, LgD-----	3o7	Loblolly pine-----	79	Loblolly pine, slash pine, Virginia pine, yellow-poplar.	Slight---	Slight---	Slight.
		Shortleaf pine----	70				
		Southern red oak--	70				
		White oak---------	70				
LgE, LgF----------	3r8	Loblolly pine-----	79	Loblolly pine, slash pine, Virginia pine, yellow-poplar.	Moderate-	Moderate-	Slight.
		Shortleaf pine----	70				
		Southern red oak--	70				
		White oak---------	70				
*Masada: MaB------- For Altavista part, see Altavista series.	3o7	Loblolly pine-----	75	Loblolly pine, slash pine, Virginia pine, yellow-poplar.	Slight---	Slight---	Slight.
		Shortleaf pine----	65				
		Sweetgum----------	78				
		White oak---------	73				
Mecklenburg:							
McB2, McC2, McD2--	4o1	Loblolly pine-----	75	Eastern redcedar, loblolly pine, slash pine, yellow-poplar.	Slight---	Slight---	Slight.
		Shortleaf pine----	67±7				
		Southern red oak--	75				
		Sweetgum----------	82				
		White oak---------	71±5				
		Yellow-poplar-----	89				
MkC3---------------	4c2e	Loblolly pine-----	66	Eastern redcedar, loblolly pine, slash pine, Virginia pine.	Moderate-	Moderate-	Moderate.
		Shortleaf pine----	59				
		Northern red oak--	78				
Nason:							
N1D2---------------	3o7	Chestnut oak------	58	Loblolly pine, Virginia pine, yellow-poplar.	Slight---	Slight---	Slight.
		Northern red oak--	75				
		Shortleaf pine----	64				
		Southern red oak--	70±7				
		White oak---------	65±7				
		Yellow-poplar-----	84				
		Virginia pine-----	70±5				
N1E2---------------	3r8	Chestnut oak------	58	Loblolly pine, Virginia pine, yellow-poplar.	Moderate-	Moderate-	Slight.
		Northern red oak--	75				
		Shortleaf pine----	64				
		Southern red oak--	70±7				
		White oak---------	65±7				
		Yellow-poplar-----	84				
		Virginia pine-----	70±5				
NsE3---------------	4c3e	Loblolly pine-----	70	Loblolly pine------	Severe---	Severe---	Moderate.

TABLE 5.--WOODLAND GROUPS, WOOD CROPS, AND FACTORS IN MANAGEMENT--Continued

Soil series and map symbols	Woodland group	Potential productivity		Trees suitable for planting	Erosion hazard	Equipment restriction	Seedling mortality
		Trees	Average site index and standard deviation				
			Feet				
Pacolet:							
PaB2, PaC2, PaD2---	3o7	Black oak---------	70	Eastern white pine, loblolly pine, Virginia pine, northern red oak, yellow-poplar.	Slight---	Slight---	Slight.
		Eastern white pine----------	81				
		Northern red oak--	79				
		Loblolly pine-----	72±7				
		Post oak----------	68				
		Scarlet oak-------	75				
		Shortleaf pine----	70±9				
		Southern red oak--	74±11				
		Sweetgum----------	82				
		Virginia pine-----	78±10				
		White oak---------	69±13				
		Yellow-poplar-----	86±14				
PaE2, PaF2---------	3r8	Black oak---------	70	Eastern white pine, loblolly pine, Virginia pine, northern red oak, yellow-poplar.	Moderate-	Moderate-	Slight.
		Eastern white pine----------	81				
		Northern red oak--	79				
		Loblolly pine-----	72±7				
		Post oak----------	68				
		Scarlet oak-------	75				
		Shortleaf pine----	70±9				
		Southern red oak--	74±11				
		Sweetgum----------	82				
		Virginia pine-----	78±10				
		White oak---------	69±13				
		Yellow-poplar-----	86±14				
PcB3, PcC3, PcD3---	4c2e	Loblolly pine-----	70	Eastern redcedar, loblolly pine, Virginia pine.	Slight---	Moderate-	Moderate.
		Shortleaf pine----	70				
		Southern red oak--	60				
		Virginia pine-----	68				
		White oak---------	67				
PcE3----------	4c3e	Loblolly pine-----	70	Eastern redcedar, loblolly pine, Virginia pine.	Moderate-	Severe---	Moderate.
		Shortleaf pine----	70				
		Southern red oak--	60				
		Virginia pine-----	68				
		White oak---------	67				
Pickens:							
PkE----------	4d2	Loblolly pine-----	66	Eastern redcedar, loblolly pine, Virginia pine.	Moderate-	Moderate-	Slight.
		Shortleaf pine----	55				
		Eastern redcedar--	35				
PkF----------	4d3	Loblolly pine-----	66	Eastern redcedar, loblolly pine, Virginia pine.	Severe---	Severe---	Moderate.
		Shortleaf pine----	55				
		Eastern redcedar--	35				
Rock land: Ro. Not suited to woodland use.							

TABLE 5.--WOODLAND GROUPS, WOOD CROPS, AND FACTORS IN MANAGEMENT

Soil series and map symbols	Woodland group	Potential productivity		Trees suitable for planting	Erosion hazard	Equipment restriction	Seedling mortality
		Trees	Average site index and standard deviation				
			Feet				
Rutlege: Ru---------	2w3	Loblolly pine-----	86	Loblolly pine, slash pine.	Slight---	Severe---	Severe.
		Slash pine--------	86				
Starr: Sr----------	1o7	Eastern white pine----------	91	Black walnut, eastern white pine, green ash, loblolly pine, sweetgum, yellow-poplar.	Slight---	Slight---	Slight.
		Loblolly pine-----	101±10				
		Shortleaf pine----	75±11				
		Virginia pine-----	81				
		Yellow-poplar-----	103±10				
		White oak---------	74				
Tatum:							
TaD2---------	4o1	Eastern white pine----------	85	Loblolly pine, eastern redcedar, Virginia pine, slash pine.	Slight---	Slight---	Slight.
		Loblolly pine-----	70±8				
		Longleaf pine-----	63±6				
		Shortleaf pine----	66±8				
		Scarlet oak-------	63				
		Southern red oak--	79				
		Virginia pine-----	71				
		White oak---------	65				
		Yellow-poplar-----	80				
TaE2---------	4r2	Eastern white pine----------	85	Loblolly pine, eastern redcedar, Virginia pine, slash pine.	Moderate-	Moderate-	Slight.
		Loblolly pine-----	70±8				
		Longleaf pine-----	63±6				
		Shortleaf pine----	66±8				
		Scarlet oak-------	63				
		Southern red oak--	79				
		Virginia pine-----	71				
		White oak---------	65				
		Yellow-poplar-----	80				
TcE3---------	4c3e	Loblolly pine-----	66	Eastern redcedar, loblolly pine, Virginia pine, slash pine.	Severe---	Severe---	Severe.
		Shortleaf pine----	60				
		Virginia pine-----	69				
		Yellow-poplar-----	68				
*Vaucluse: VbB, VbC, VbD. For Blaney part of these units, see Blaney series.	3o1	Loblolly pine-----	76±6	Loblolly pine, slash pine.	Slight---	Slight---	Slight.
		Slash pine--------	75				
		Longleaf pine-----	56±5				
Wagram: WaB, WaC, WaD.	3s2	Loblolly pine-----	82±5	Loblolly pine, longleaf pine, slash pine.	Slight---	Moderate-	Moderate.
		Slash pine--------	80				
		Longleaf pine-----	67±4				
Wedowee: WdE2-------	3r8	Loblolly pine-----	80	Loblolly pine, Yellow-poplar.	Moderate-	Moderate-	Slight.
		Shortleaf pine----	69				
		Northern red oak--	68				
		White oak---------	65				

TABLE 5.--WOODLAND GROUPS, WOOD CROPS, AND FACTORS IN MANAGEMENT--Continued

Soil series and map symbols	Woodland group	Potential productivity		Trees suitable for planting	Erosion hazard	Equipment restriction	Seedling mortality
		Trees	Average site index and standard deviation				
			Feet				
Wedowee: WdE2	3r8	Loblolly pine Shortleaf pine Northern red oak White oak	80 69 68 65	Loblolly pine, yellow-poplar.	Moderate-	Moderate-	Slight.
*Wehadkee: We For Chewacla part, see Chewacla series.	1w9	Eastern cottonwood Green ash Loblolly pine Sweetgum Water oak Yellow-poplar	86 96 102 93±6 86 98±8	Cherrybark oak, eastern cottonwood, green ash, loblolly pine, sweetgum, sycamore, slash pine, yellow-poplar.	Slight---	Severe---	Severe.
Wickham:							
WhB2, WhC2	3o7	Loblolly pine Shortleaf pine Southern red oak White oak Yellow-poplar	82 71 80 84	Loblolly pine, sweetgum, slash pine, yellow-poplar.	Slight---	Slight---	Slight.
WkC3	4c2e	Loblolly pine	70	Loblolly pine	Moderate-	Moderate-	Moderate.
Wilkes:							
W1C2, W1D2	4o1	Loblolly pine Shortleaf pine Southern red oak Sweetgum	75±7 63 76 82	Eastern redcedar, loblolly pine, Virginia pine.	Slight---	Slight---	Slight.
W1F	4r2	Loblolly pine Shortleaf pine Southern red oak Sweetgum	75±7 63 76 82	Eastern redcedar, loblolly pine, Virginia pine.	Moderate-	Moderate-	Slight.
Worsham: Wo	2w8	Loblolly pine Shortleaf pine Virginia pine Post oak Southern red oak Sweetgum White oak Yellow-poplar	88 66 66 69 91 86±6 73±8 95±10	Loblolly pine, slash pine, sweetgum, sycamore, yellow-poplar.	Slight---	Moderate-	Slight.

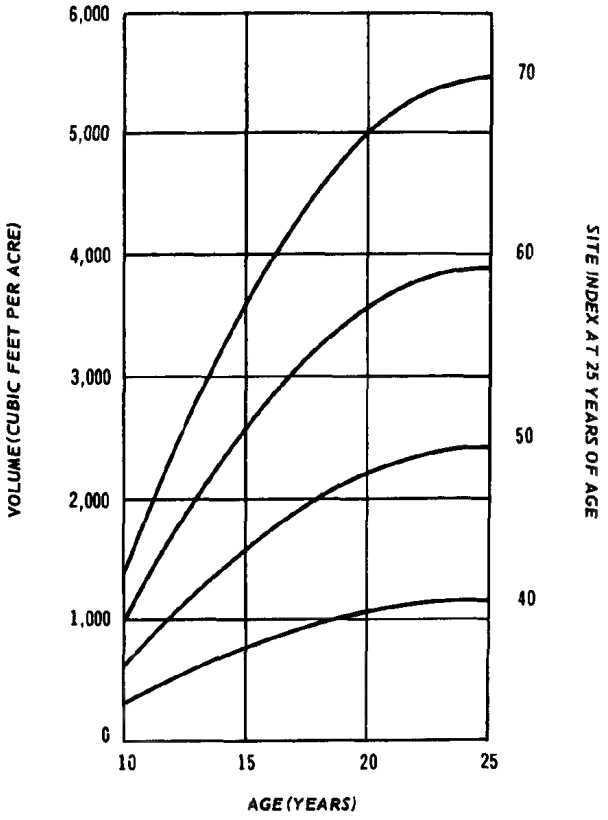

Figure 2.--Merchantable volume (inside bark) to 3-inch top in cubic feet per acre for loblolly pine plantations. Stocking: 700 trees per acre.

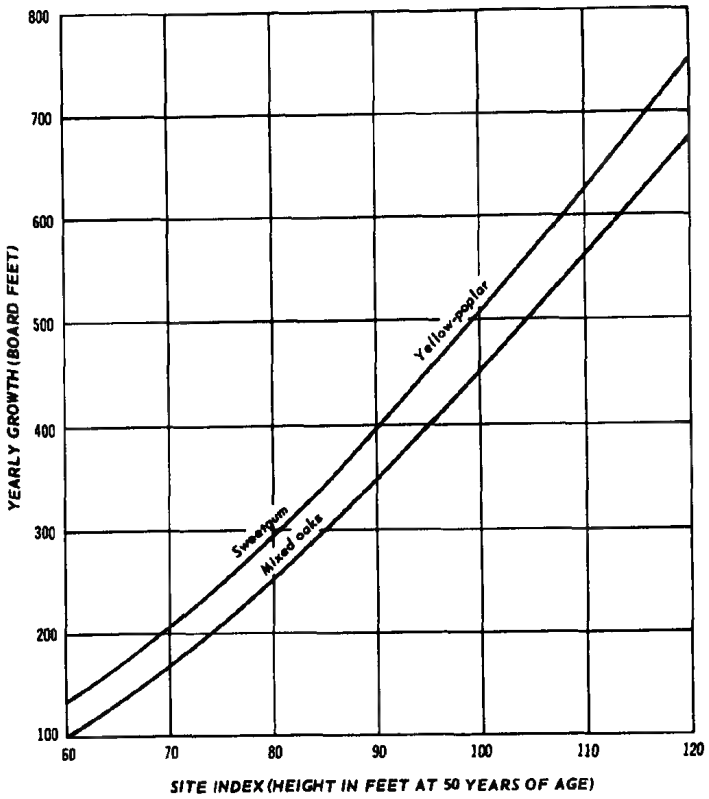

Figure 3.--Average yearly growth per acre, in board feet (Scribner log rule), of hardwoods in well-stocked, even-aged managed stands.

Use of the Soils in Engineering [5/]

Some soil properties are of special interest to engineers because they affect the construction and maintenance of roads, airports, pipelines, building foundations, facilities for water storage, erosion control structures, drainage systems, and sewage disposal systems. Among the properties most important to engineers are permeability, strength, consolidation characteristics, texture, plasticity, and soil reaction. Depth to unconsolidated materials and topography are also important.

Information concerning these and related soil properties is given in tables 7, 8, and 9. The estimates and interpretations in these tables can be used to--

1. Make studies that will aid in selecting and developing industrial, commercial, residential, and recreational sites.
2. Make preliminary estimates of the engineering properties of soils in planning drainage systems, farm ponds, irrigation systems, terraces, waterways, and diversion terraces.
3. Make preliminary evaluations of soil conditions that will aid in selecting sites for highways, airports, pipelines, and cables and in planning detailed investigations at selected locations.
4. Locate probable sources of gravel, sand, and other construction material.
5. Correlate performance of soil mapping units to develop information that will be useful in planning engineering practices and in designing and maintaining engineering structures.
6. Determine the suitability of soils for cross-country movement of vehicles and construction equipment.
7. Supplement other publications, such as maps, reports, and aerial photographs, that are used in preparation of engineering reports for a specific area.
8. Develop other preliminary estimates for construction purposes pertinent to the particular area.

The engineering interpretations reported here do not eliminate the need for sampling and testing at the site of specific engineering works involving heavy loads or excavations deeper than the depths reported (ordinarily about 5 feet). Even in these

5/ Prepared by HOWARD E. MORRISON, agricultural engineer, Soil Conservation Service.

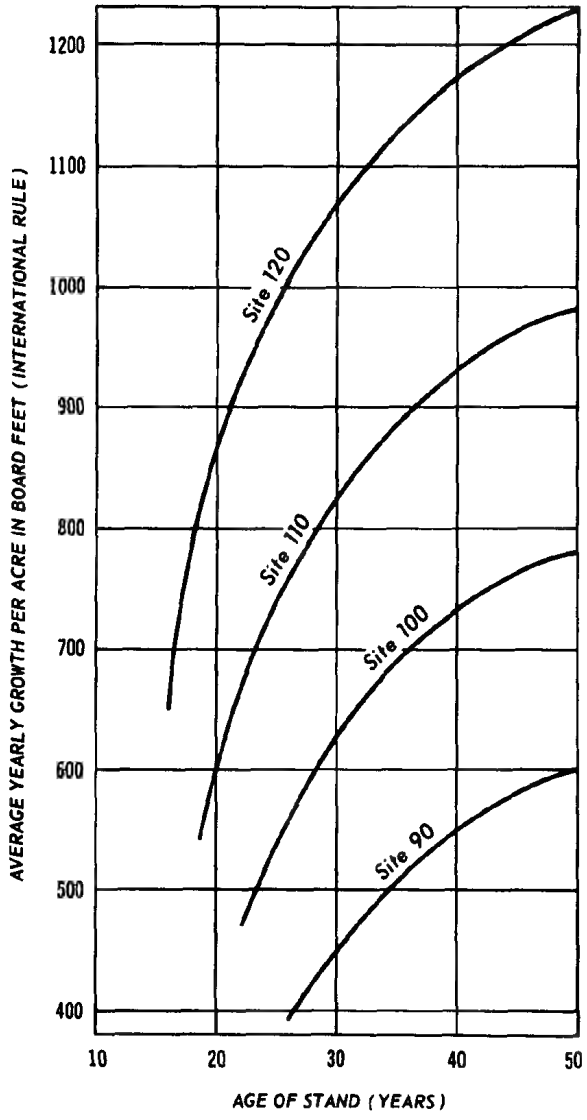

Figure 4.--Average annual growth per acre, in board feet (International rule), of cottonwoods in well-stocked, even-aged managed stands.

situations, however, the soil map is useful in planning more detailed field investigations and in indicating the kinds of problems that may be expected.

Some of the terms used by soil scientists have special meanings in soil science that may not be familiar to engineers. These terms are defined in the Glossary.

Engineering Classification Systems

The two systems most commonly used in classifying soils for engineering are the systems approved by the American Association of State Highway Officials (AASHO) and the Unified system.

The AASHO system (1) is used to classify soils according to those properties that affect use in highway construction. In this system all soil material is classified in seven principal groups. The groups range from A-1, which consists of soils that have the highest bearing strength and are the best soils for subgrade, to A-7, which consists of soils that have the lowest strength when wet. Within each group, the relative engineering value of the soil material is indicated by a group index number. The numbers range from 0, for the best material, to 20, for the poorest. The group index number is shown in parentheses following the soil group symbol (see table 7).

In the Unified system (15), soils are classified according to their texture and plasticity and their performance as engineering construction material. Soils are grouped in 15 classes. There are eight classes of coarse-grained soils, identified as GW, GP, GM, GC, SW, SP, SM, and SC; six classes of fine-grained soils, identified as ML, CL, OL, MH, CH, and OH; and one class of highly organic soils, identified as Pt. GP and GW are clean gravels, and GM and GC are gravels that include, respectively, an appreciable amount of nonplastic and plastic fines. SP and SW are clean sands. SM and SC are sands that include fines of silt and clay. ML and CL are silts and clays that have a low liquid limit, and MH and CH are silts and clays that have a high liquid limit. Soils on the borderline between two classes are designated by symbols for both classes; for example, ML-CL.

Soil scientists use the USDA textural classification (13). In this system, the texture of the soil is determined according to the proportion of soil particles smaller than 2 millimeters in diameter, that is, the proportion of sand, silt, and clay. Textural modifiers, such as gravelly, stony, shaly, and cobbly, are used as needed.

Table 7 shows the AASHO and Unified classifications of specified soils in the county, as determined by laboratory tests. Table 8 shows the estimated classification of all the soils in the county according to all three systems of classification.

Engineering Test Data

Samples of the principal soil types of nine extensive soil series were tested according to standard procedures. These tests were made to help evaluate the soils for engineering purposes. The laboratory test data are given in table 7. Test data may not be adequate for estimating characteristics of soil materials in very deep cuts because the soil samples for the tests were obtained to a depth of approximately 6 feet.

The engineering soil classifications in table 7 are based on data obtained by mechanical analyses and by tests to determine the liquid limit and the plastic limit. Mechanical analyses were made by the combined sieve and hydrometer methods.

The tests for plastic limit and liquid limit measure the effect of water on the consistence of the soil material. As the moisture of a dry clayey

TABLE 6.--RECOMMENDED CUTTING AND ESTIMATED YIELDS FROM WELL-STOCKED, EVEN-AGED STANDS OF UPLAND HARDWOODS MANAGED FOR PULPWOOD 1/

Kind of cutting	Average stand diameter	Average stand age	Average volume per acre 2/--			
			Before this cut	This cut	After this cut	Cumulative cut
	Inches	Years	Cords	Cords	Cords	Cords
All sites:						
Reproduction cutting	0	0	0	0	0	0
Precommercial thinning	1-3	10	0	0	0	0
Site class 40 (10-year cutting cycle)						
Commercial thinning	6	40	9	3	6	3
Commercial thinning	8	50	17	4	13	7
Harvest cut	10	60	23	23	0	30
Site class 50 (9-year cutting cycle)						
Commercial thinning	6	36	11	4	7	4
Commercial thinning	8	45	19	5	14	9
Harvest cut	10	54	26	26	0	35
Site class 60 (8-year cutting cycle)						
Commercial thinning	6	32	14	5	9	5
Commercial thinning	8	40	22	6	16	11
Harvest cut	10	48	27	27	0	38
Site class 70 (7-year cutting cycle)						
Commercial thinning	6	28	18	6	12	6
Commercial thinning	8	35	22	7	15	13
Harvest cut	10	42	28	28	0	41
Site class 80 (6-year cutting cycle)						
Commercial thinning	6	24	18	6	12	6
Commercial thinning	8	30	24	7	17	13
Harvest cut	10	36	29	29	0	42

1/ USDA Forest Research Paper NE-151, 1969 (4).

2/ Volume of merchantable wood to a 4-inch top.

soil increases, the material changes from a solid to a semisolid or plastic state. As the moisture content further increases, the material changes from a plastic to a liquid state. The plastic limit is the moisture content at which the soil material passes from a semisolid to a plastic state. The liquid limit is the moisture content at which the material passes from a plastic to a liquid state. The plasticity index is the numerical difference between the plastic limit and the liquid limit. It indicates the moisture content within which a soil material is in a plastic condition.

A dual classification, such as ML-CL, is used under the Unified classification system to indicate a borderline soil that possesses characteristics in two groups.

Estimated Properties

The physical and chemical properties of the soils in the county are given in table 8. The depth to bedrock and the depth to the seasonal high water table are given, and soil layers that have properties significant in engineering are listed; hence, the depths shown may not be the same as the depths in the section "Descriptions of the Soils" or "Formation and Classification of the Soils." The texture of each layer is listed according to the textural classification system of the United States Department of Agriculture (13) and American Association of State Highway Officials (1). Also listed for the layers are the estimated percentages of material that will pass a No. 4, 10, 40, and 200 sieve.

Permeability is estimated for each layer on the basis of soil structure without compaction. It refers to the rate at which water moves through the soil material and depends largely on the texture and structure of the soil (12).

Available water capacity is the capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil.

Reaction is shown in numerical terms of pH. A pH value less than 6.6 indicates that the soil is acid; a value more than pH 7.3 indicates that the soil is alkaline. Extreme acid or alkaline reactions can have an important effect on structures or on soil stabilization treatments.

The rating for shrink-swell potential indicates how much a soil changes in volume when it is subject to changes in moisture content. In general, soils that have a high clay content, such as CH and A-7, as shown in table 8, have a high shrink-swell potential and those that contain clean sand and gravel have a low shrink-swell potential.

Engineering Interpretations for Highway and Conservation Uses 6/

Properties of the soils that affect their suitability for highway and conservation uses are shown in table 9.

In rating the soil as a source of topsoil, the main factors considered were the ability of the soil to grow vegetation, the thickness of the surface layer, and the presence of rock or coarse fragments.

Road fill ratings were based on the suitability of the soil as an embankment to support a subbase, a base course, or a surface course. Shear strength, shrink-swell potential, compaction, workability, moisture content, depth to water table, and depth to bedrock were the factors considered.

The factors considered for highway location were those soil features that affect performance for the location of highways. The main factors considered were slope, traffic-supporting capacity, water table, erodibility of soil material, depth to rock, and flooding. These factors were considered for the entire soil profile in an undisturbed state.

The conservation uses of the soil considered were in the construction of ponds, irrigation systems, terraces, diversions, and waterways. These are the main conservation engineering uses in the county.

Many sites in the county are suitable for ponds. Many ponds have been built, and they are a major source of water for fish and livestock. Requirements in constructing a pond are: (1) selecting a site where the maximum amount of water can be impounded at a minimum cost; (2) preventing excessive seepage under or through the dam or along the abutments; (3) providing adequate fill material to build a stable embankment; (4) providing spillways adequate to carry off storm water; and (5) stabilizing embankments and emergency spillways by establishing suitable vegetation.

The features considered in rating the suitability of the soil for irrigation are the available water capacity, the infiltration rate, the permeability, and the slope of the soil.

The factors affecting terraces and diversions are soil texture, depth to bedrock or other unfavorable material, and uniformity, percentage, and length of slope.

Factors affecting waterways are erodibility, steep slopes, and difficulty in establishing vegetation.

Limitations of the Soils for Town and Country Planning

Table 10 rates the limitations of all the soils in the county for sewage lagoons, septic tank filter fields, camp areas, picnic areas, playgrounds, paths and trails, foundations for low buildings, sites for light industry, and local roads and streets. The ratings are expressed as slight, moderate, and severe. Also given for all ratings are the soil properties that mainly determine the ratings. A rating of slight means that the soils have few or no limitations or that the limitations can be easily overcome. A rating of moderate indicates that the limitations should be recognized, but that they can be overcome by practical means. A rating of severe indicates that suitability of the soils for the specified use is questionable because the limitations are difficult to overcome.

Gullied land and Rock land are not included in table 10.

Sewage lagoons and septic tank filter fields.--The principal reasons for assigning moderate or severe limitations for sewage lagoons and septic tank filter fields are given. The soil features considered are permeability, percolation, location of water table, susceptibility to flooding, depth to rock, and slope.

Recreational areas.--The main factors that limit the use of soils for camp areas, picnic areas, playgrounds, and paths and trails are texture of the surface layer, permeability, depth to the water table, flooding, drainage, depth to rock, and slope.

Foundations for low buildings and sites for light industry.--These are sites for buildings of three stories or less. Facilities for sewage disposal are assumed to be available. The factors considered in rating the limitations are bearing strength, slope, depth to the water table, hazard of flooding, and depth to rock. Engineers and others should not apply specific values to the estimates given for bearing strength of soils.

6/ S. C. WILLIAMS, Jr., associate resident engineer, and J. R. BAILEY, associate resident construction engineer, South Carolina State Highway Department, helped prepare this section.

TABLE 7.--ENGINEERING

[Tests performed by the South Carolina State Highway Department in accordance

Soil name and location	Parent material	South Carolina report no.	Depth from surface	Moisture density 1/	
				Optimum moisture content	Maximum dry density
			In.	Pct.	Lb./cu. ft.
Appling fine sandy loam, 2 to 6 percent slopes, eroded: 7 miles southwest of Lancaster, 20 feet north of County Road No. 216, and 0.6 mile east of County Road No. 166. (Modal profile)	Argillitic, felsic and mafic rock.	F46515 F46516 F46517	0-6 14-45 48-70	11 22 19	113 99 103
Cecil clay loam, 6 to 10 percent slopes, severely eroded: 9 miles southeast of Lancaster, 1.5 miles north of State Highway No. 903, and 20 feet west of County Road No. 26. (Modal profile)	Gneiss, hornblende, schist, gabbro.	F46556 F46557 F46558	0-5 5-35 60-72	18 30 ---	102 93 ---
Davidson clay loam, 2 to 6 percent slopes, eroded: 4 miles northwest of Lancaster, 100 feet west of County Road No. 29, and 0.5 mile north of State Highway No. 9. (Modal profile)	Diabase, hornblende, gabbro.	F46476 F46477 F46478	0-7 7-43 43-72	16 --- 25	113 --- 100
Durham loamy sand, 2 to 6 percent slopes: 6 miles southwest of Lancaster, 0.2 mile west of County Road No. 179, and 0.4 mile northwest of County Road No. 339. (Modal profile)	Granite.	F46486 F46487 F46488	0-6 21-33 33-72	12 18 15	113 107 109
Georgeville silt loam, 2 to 6 percent slopes, eroded: 16 miles north of Lancaster, 400 feet west of County Road No. 92, and 20 feet south of County Road No. 65. (Modal profile)	Argillite and schist.	F46550 F46551 F46552	0-7 37-55 65-70	22 31 27	99 89 91
Gills silt loam, 2 to 6 percent slopes: 8 miles east of Lancaster, 7 miles north of County Road No. 123, and 200 feet east of State Highway No. 522. (Thicker Bt horizon than modal)	Argillite and schist.	F46540 F46541 F46542 F46543	0-5 8-20 20-36 36-60	17 19 26 21	103 106 92 102
Gills silt loam, 2 to 6 percent slopes: 8 miles east of Lancaster, 0.7 mile west of State Highway No. 522, 50 feet south of County Road. (Modal profile)	Argillite, schist, and mafic rock.	F46534 F46535 F46536	0-6 12-23 23-45	108 --- ---	15 --- ---
Helena fine sandy loam, 2 to 6 percent slopes: 6 miles south of Lancaster, 50 feet east of County Road No. 245, 100 feet south of County Road No. 158. (Thicker Bt horizon than modal)	Granite and schist.	F46518 F46519 F46520 F46521	0-6 6-13 24-50 55-70	109 105 --- ---	13 19 --- ---

See footnotes at end of table.

TEST DATA

with standard procedures of the American Association of State Highway Officials (AASHO)]

Mechanical analysis 2/					Liquid limit	Plasticity index	Classification	
Percentage passing sieve--				Particles smaller than 0.014 mm.			AASHO	Unified
No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)					
					Pct.			
96	94	87	33	8	3/ NP	3/ NP	A-2-4(0)	SM
---	100	92	75	65	61	25	A-7-5(18)	MH
---	100	86	57	37	42	NP	A-5(5)	ML
---	100	95	81	41	28	6	A-4(8)	CL-ML
---	100	99	95	79	63	23	A-7-5(17)	MH
---	100	100	93	69	59	17	A-7-5(15)	MH
---	100	94	70	43	29	10	A-4(7)	CL
---	100	97	81	59	40	11	A-6(8)	ML
---	100	98	87	71	62	27	A-7-5(19)	MH
97	96	84	45	11	NP	NP	A-4(2)	SM
---	100	90	60	38	33	10	A-4(5)	ML or CL
---	100	81	48	27	33	6	A-4(3)	SM
---	100	96	83	51	36	8	A-4(8)	ML
---	100	100	98	86	71	40	A-7-5(20)	CH
---	100	99	93	72	59	14	A-7-5(14)	MH
92	85	82	71	28	NP	NP	A-4(7)	ML
---	100	98	94	60	36	11	A-6(8)	ML
---	100	100	98	76	48	13	A-7-5(11)	ML
---	100	99	96	56	33	7	A-4(8)	ML
91	81	66	58	39	36	9	A-4(5)	ML
---	100	98	95	74	54	24	A-7-5(17)	MH
---	100	81	54	24	25	2	A-4(4)	ML
---	100	93	53	19	NP	NP	A-4(4)	ML
---	100	95	75	44	35	12	A-6(9)	ML-CL
---	100	96	76	50	51	18	A-7-5(13)	MH
---	100	83	61	37	42	8	A-5(6)	ML

TABLE 7.--ENGINEERING

Soil name and location	Parent material	South Carolina report no.	Depth from surface	Moisture density 1/	
				Optimum moisture content	Maximum dry density
			In.	Pct.	Lb./cu. ft.
Helena fine sandy loam, 6 to 10 percent slopes, eroded:					
6 miles southwest of Lancaster, 50 feet west of County Road No. 339, 0.3 mile north of County Road No. 179. (Modal profile)	Granite, gneiss, and schist.	F46493	0-3	118	10
		F46494	6-22	111	15
		F46495	22-38	90	29
		F46496	60-70	102	19
Herndon silt loam, 2 to 6 percent slopes, eroded:					
7 miles east of Lancaster, 25 feet east of County Road No. 303, 0.2 mile south of State Highway No. 9. (Modal profile)	Argillite.	F46522	0-6	---	---
		F46523	6-20	88	30
		F46524	20-34	88	31
		F46525	34-50	89	28
Herndon silt loam, 2 to 6 percent slopes, eroded:					
5 miles east of Lancaster, 3 miles east of County Road No. 36, 20 feet south of County Road No. 330. (Thicker Bt horizon than modal)	Argillite.	F46529	0-5	106	16
		F46530	21-36	102	21
		F46531	36-70	98	22
Mecklenburg fine sandy loam, 2 to 6 percent slopes, eroded:					
8 miles northwest of Lancaster, 20 feet east of County Road No. 29, 0.5 mile south of County Road No. 162. (Modal profile)	Diabase, diorite, hornblende.	F46483	4-21	86	32
		F46484	21-39	85	34
		F46485	39-72	90	28

1/ Based on AASHO Designation: T99-57, Method A (1).

2/ Mechanical analysis according to AASHO Designation: T 88-57 (1). Results by this procedure may differ somewhat from results obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the AASHO procedure, the fine material is analyzed by the hydrometer method and the various grain-size fractions are calculated on the basis of all the material, including that coarser than 2 millimeters in diameter.

TEST DATA--Continued

Mechanical analysis 2/					Liquid limit	Plasticity index	Classification	
Percentage passing sieve--				Particles smaller than 0.014 mm.			AASHO	Unified
No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)					
					Pct.			
---	100	90	50	21	NP	NP	A-4(3)	SM
---	100	95	67	44	38	17	A-6(9)	CL
---	100	93	78	65	61	24	A-7-5(18)	MH
---	100	92	59	31	45	9	A-5(6)	ML
79	74	67	58	34	25	3	A-4(5)	CL-ML
---	100	99	96	70	55	21	A-7-5(15)	MH
---	100	100	98	73	62	21	A-7-5(16)	MH
---	100	100	94	50	47	9	A-5(9)	ML
76	74	71	62	14	NP	NP	A-4(5)	ML
---	100	99	96	53	44	17	A-7-6(12)	ML-CL
---	100	100	95	57	48	13	A-7-5(11)	ML
---	100	97	86	74	62	15	A-7-5(14)	MH
---	100	93	75	60	66	15	A-7-5(14)	MH
---	100	90	60	38	54	3	A-5(7)	MH

In the SCS soil survey procedure, the fine material is analyzed by the pipette method and the material coarser than 2 millimeters in diameter is excluded from calculations of grain-size fractions. The mechanical analysis data used in this table are not suitable for naming textural classes for soils.

3/ Nonplastic.

TABLE 8.--ESTIMATES OF SOIL PROPERTIES

[An asterisk in the first column indicates that at least one mapping unit in this series is made up of two or this reason it is necessary to follow carefully the instructions for referring to other

Soil series and map symbols	Depth to bedrock	Depth to seasonal high water table	Depth from surface	Classification		
				Dominant USDA texture	Unified	AASHO
	Ft.	Ft.	In.			
Altavista---------- Mapped only with Masada soils.	5-15	2-4	0-18	Fine sandy loam-	SM, ML	A-4
			18-50	Sandy clay loam-	SC, CL	A-6
			50-65	Sandy loam------	SC, CL	A-4, A-6
*Appling: ApB2, ApC2, ApD2, AtB2, AtC2, AtD2. For Chesterfield part of AtB2, AtC2, and AtD2, see Chesterfield series.	>10	6+	0-7	Fine sandy loam-	SM	A-4, A-2
			7-46	Clay----------	ML, CL, MH	A-4, A-6, A-7
			46-72	Clay loam-------	ML, CL	A-5, A-6, A-7
AsC3, AsD3----------	>10	6+	0-5	Sandy clay loam-	SM	A-4
			5-46	Clay----------	ML, CL, MH	A-4, A-6, A-7
			46-72	Clay loam-------	ML, CL	A-5, A-6, A-7
Blaney: BlC----------	>15	6+	0-26	Sand----------	SM, SP-SM	A-2
			26-48	Sandy clay loam-	SC, CL	A-6
Blanton: BnB, BnC----------	>15	6+	0-63	Sand----------	SP-SM	A-3
			63-72	Loamy sand------	SP-SM	A-3
Cecil: CcB2, CcC2, CcD2, CcE2-----	>15	6+	0-5	Fine sandy loam-	SM	A-2, A-4
			5-44	Clay loam to clay.	MH, CH	A-7
			44-58	Clay loam to loam.	ML, MH	A-5, A-7
CeB3, CeC3, CeE3----------	>15	6+	0-4	Clay loam-------	ML, CL-ML	A-4
			4-44	Clay loam to clay.	MH, CH	A-7
			44-58	Clay loam to loam.	ML, MH	A-5, A-7
Chesterfield---------- Mapped only with Appling soils.	>10	6+	0-8	Loamy sand------	SM	A-2
			8-27	Clay loam-------	CL	A-7
			27-70	Silt loam-------	CL	A-6
Chewacla soils: Ch----------	>15	0-2	0-20	Silt loam-------	ML	A-4
			20-72	Silty clay loam-	CL	A-6
Colfax: ClB----------	>5	6+	0-9	Fine sandy loam-	SM	A-4
			9-36	Sandy clay loam-	CL	A-6
			36-55	Sandy loam------	SM, ML	A-4, A-6
Congaree soils: Co----------	>15	2-4	0-18	Fine sandy loam-	SM, ML	A-4
			18-42	Silt loam and silty clay loam.	ML, CL	A-4, A-6

more kinds of soil. The soils in such mapping units may have different properties and limitations, and for series that appear in the first column of this table. Symbol > means more than]

Percentage passing sieve--				Permeability	Available water capacity	Reaction	Shrink-swell potential
No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)				
				In./hr.	In./in. of soil	pH	
90-100	90-100	80-98	45-55	0.63-2.0	0.17	5.1-5.5	Low.
90-100	90-100	80-100	45-55	0.63-2.0	0.20	5.1-5.5	Low to moderate.
90-100	90-100	80-100	45-55	0.63-2.0	0.13	4.5-5.0	Low.
85-100	80-100	75-98	30-49	2.0-6.3	0.11	6.1-6.5	Low.
95-100	90-100	85-100	65-85	0.63-2.0	0.13	4.5-6.0	Low.
90-100	85-100	80-100	55-80	0.63-2.0	0.12	4.5-5.0	Low.
90-100	90-100	80-98	40-48	2.0-6.3	0.13	5.6-6.0	Low.
95-100	90-100	85-100	65-85	0.63-2.0	0.13	4.5-6.0	Low.
90-100	85-100	80-100	55-80	0.63-2.0	0.12	4.5-5.0	Low.
100	100	60-98	10-25	6.3-20.0	0.02	5.1-5.5	Very low.
100	100	70-100	36-55	0.06-0.20	0.09-0.12	4.5-5.5	Low.
100	100	60-98	5-10	6.3-20.0	0.03	5.1-6.0	Very low.
100	100	65-100	5-10	6.3-20.0	0.07	5.1-5.5	Very low.
80-100	70-100	65-95	30-45	2.0-6.3	0.11	5.6-6.0	Low.
90-100	90-100	90-100	80-95	0.63-2.0	0.13	5.1-6.0	Moderate to low.
90-100	90-100	85-100	51-95	0.63-2.0	0.12	5.1-5.5	Low.
90-100	70-100	65-98	51-85	0.63-2.0	0.13	5.6-6.0	Low.
90-100	90-100	90-100	80-95	0.63-2.0	0.13	5.1-6.0	Moderate to low.
90-100	90-100	85-100	51-95	0.63-2.0	0.12	5.1-5.5	Low.
80-100	80-100	70-95	15-30	6.3-20.0	0.07	5.1-5.5	Low.
90-100	90-100	90-100	70-85	0.63-2.0	0.17	4.5-5.5	Low.
90-100	88-100	85-100	85-98	0.63-2.0	0.19	4.5-5.5	Moderate.
100	100	80-100	60-100	0.63-2.0	0.22	5.6-6.0	Low.
100	100	90-100	50-100	0.63-2.0	0.18	5.1-6.0	Moderate.
90-100	90-100	85-98	36-45	0.63-2.0	0.12	5.1-6.0	Low.
90-100	90-100	85-98	51-55	0.06-0.20	0.13	4.5-5.5	Low.
90-100	90-100	85-100	40-55	0.2-0.63	0.12	4.5-5.5	Low.
100	100	85-100	45-55	0.63-2.0	0.13	5.6-6.5	Low.
100	100	90-100	65-75	0.63-2.0	0.13	5.1-6.0	Low.

TABLE 8.--ESTIMATES OF SOIL PROPERTIES

Soil series and map symbols	Depth to bedrock	Depth to seasonal high water table	Depth from surface	Classification		
				Dominant USDA texture	Unified	AASHO
	Ft.	Ft.	In.			
Davidson: DaB2, DaC2, DaD2--	>15	6+	0-15	Clay loam--------	ML, CL	A-4, A-6
			15-48	Clay-------------	MH, ML	A-6, A-7
			48-72	Clay loam--------	CL, MH	A-6, A-7
Durham: DvB, DvB2, DvC2-----	8-30	6+	0-10	Loamy sand-------	SM	A-2, A-4
			10-33	Sandy clay loam--	ML, CL	A-4
			33-52	Sandy loam-------	SM, ML	A-4
Enon:						
EnB2, EnC2, EnE2----------	3-5	6+	0-4	Loam-------------	SM, ML	A-4, A-6
			4-24	Clay-------------	MH, MH-CH	A-7
			24-35	Fine sandy loam--	ML, CL	A-5, A-4, A-6
EoB3, EoD3----------	3-5	6+	0-4	Clay loam--------	CL, CH	A-6, A-7
			4-24	Clay-------------	MH, MH-CH	A-7
			24-35	Fine sandy loam--	ML, CL	A-5, A-4, A-6
Eustis: EuB, EuD----------	>10	6+	0-8	Loamy sand-------	SP-SM, SM	A-2
			8-50	Loamy sand-------	SM	A-2
			50-73	Sand-------------	SP-SM	A-3
Georgeville:						
GeB2, GeC2----------	4-15	6+	0-7	Silt loam--------	ML	A-4
			7-31	Silty clay-------	MH, CL	A-6, A-7
			31-63	Silt loam--------	ML, MH, CH	A-6, A-7
GgB3, GgC3----------	4-15	6+	0-4	Silty clay loam--	CL	A-6
			4-31	Silty clay-------	MH, CL	A-6, A-7
			31-63	Silt loam--------	ML, MH, CH	A-6, A-7
Gills: GlB, GlB2, GlC2------	5-8	6+	0-12	Silt loam--------	ML	A-4
			12-31	Clay-------------	MH, CL, ML	A-6, A-7
			31-52	Silt loam--------	ML, CL	A-4
*Goldston: GpB, GpC----------	3	6+	0-30	Slaty silt loam--	GM, SM, ML	A-4
For Pickens part of these units, see Pickens series.						
Gullied land: GuC, GuF, GvC, GwF. Properties too variable to rate.						
Helena: HaB, HaB2, HaC2, HaC3.	3-20	2-4	0-7	Fine sandy loam--	SM, ML	A-2, A-4
			7-30	Sandy clay-------	CL	A-7, A-6
Herndon:						
HdB2, HdC2, HdD2----------	4-15	6+	0-6	Silt loam--------	CL, ML	A-6, A-4
			6-45	Silty clay-------	CL, MH, ML	A-7, A-5
			45-62	Silt loam--------	ML	A-5, A-7
HeB3, HeC3----------	4-15	6+	0-4	Silty clay loam--	CL, ML	A-4, A-5, A-6
			4-45	Silty clay-------	CL, MH, ML	A-7, A-5
			45-62	Silt loam--------	ML	A-5, A-7

SIGNIFICANT IN ENGINEERING--Continued

Percentage passing sieve--				Permeability	Available water capacity	Reaction	Shrink-swell potential
No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)				
				In./hr.	In./in. of soil	pH	
95-100	90-100	88-98	65-80	0.63-2.0	0.13	5.1-6.5	Low to moderate.
100	100	92-100	80-95	0.63-2.0	0.14	5.1-6.5	Moderate.
100	100	90-100	70-95	0.63-2.0	0.15	5.1-6.5	Low to moderate.
95-100	90-100	70-98	30-47	2.0-6.3	0.07	5.1-5.5	Low.
95-100	95-100	85-98	51-65	0.63-2.0	0.17	5.1-5.5	Low.
90-100	90-100	80-100	40-60	0.63-2.0	0.12	5.1-5.5	Low.
80-100	65-100	58-95	45-75	0.63-2.0	0.12	5.6-6.0	Low.
95-100	95-100	85-99	70-96	0.06-0.20	0.14	5.1-6.0	High.
80-100	80-100	80-98	50-75	0.63-2.0	0.11	6.6-7.3	Low to moderate.
90-100	85-100	80-98	70-80	0.20-0.63	0.13	5.6-6.0	Moderate to high.
95-100	95-100	85-99	70-96	0.06-0.20	0.14	5.1-6.0	High.
80-100	80-100	80-98	50-75	0.63-2.0	0.11	6.6-7.3	Low to moderate.
100	100	85-100	10-20	6.3-20.0	0.02	5.6-6.0	Very low.
100	100	85-100	15-25	6.3-20.0	0.07	5.1-6.0	Very low.
100	100	80-100	5-10	6.3-20.0	0.03	5.1-5.5	Very low.
90-100	90-100	85-100	60-85	0.63-2.0	0.13	4.5-6.0	Low.
95-100	95-100	92-100	90-95	0.63-2.0	0.16	4.5-6.0	Moderate to low.
95-100	90-100	90-100	80-100	0.63-2.0	0.13	4.5-6.0	Low.
90-100	90-100	88-100	70-90	0.63-2.0	0.15	4.5-6.0	Low.
95-100	95-100	92-100	90-95	0.63-2.0	0.16	4.5-6.0	Moderate to low.
95-100	90-100	90-100	80-100	0.63-2.0	0.13	4.5-6.0	Low.
90-100	80-100	80-98	55-85	0.06-0.20	0.13	4.2-5.0	Low.
100	100	90-100	60-98	0.06-0.20	0.16	5.1-5.5	High.
100	100	90-100	54-96	0.06-0.20	0.08	4.5-5.0	Low to moderate.
40-65	40-65	40-65	40-65	2.0-6.3	0.08	4.5-5.5	Very low to low.
95-100	90-100	75-95	25-55	2.0-6.3	0.14	5.1-5.5	Low.
100	100	80-98	51-80	0.06-0.20	0.16	5.1-5.5	Moderate.
75-100	70-100	65-98	55-85	2.0-6.3	0.13	4.5-5.5	Low.
90-100	85-100	85-100	85-98	0.63-2.0	0.16	4.5-5.5	Moderate to low.
90-100	80-100	80-100	80-95	0.63-2.0	0.14	4.5-5.5	Low.
80-100	80-100	75-95	70-90	0.63-2.0	0.15	4.5-5.5	Low.
90-100	85-100	85-100	85-98	0.63-2.0	0.16	4.5-5.5	Moderate to low.
90-100	80-100	80-100	80-95	0.63-2.0	0.15	4.5-5.5	Low.

TABLE 8.--ESTIMATES OF SOIL PROPERTIES

Soil series and map symbols	Depth to bedrock	Depth to seasonal high water table	Depth from surface	Classification		
				Dominant USDA texture	Unified	AASHO
	Ft.	Ft.	In.			
Iredell: IrB2, IrC2---------	>3	1-2	0-9	Loam----------	ML	A-4
			9-29	Clay----------	CH	A-7
			29-36	Fine sandy loam---	SM, CL	A-4, A-6
Lockhart: LgB, LgC, LgD, LgE, LgF.	6-15	6+	0-6	Gravelly sandy loam.	SM	A-2
			6-54	Gravelly sandy clay loam.	SM, CL	A-4
			54-72	Gravelly sandy loam.	SM	A-2
*Masada: MaB---------- For Altavista part of this unit, see Altavista series.	5-20	6+	0-15	Silt loam---------	CL	A-4, A-6
			15-42	Silty clay loam---	CL	A-7, A-6
			42-72	Clay loam---------	CL	A-6
Mecklenburg: McB2, McC2, McD2----------	4-15	6+	0-4	Fine sandy loam---	SC, ML	A-4, A-2
			4-18	Clay----------	MH	A-7
			18-42	Clay loam---------	ML, MH	A-7, A-5
MkC3----------	4-15	6+	0-3	Clay loam---------	CL, MH	A-6, A-7
			3-18	Clay----------	MH	A-7
			18-42	Clay loam---------	ML, MH	A-7, A-5
Nason: N1D2, N1E2----------	4-10	6+	0-3	Loam----------	ML, CL	A-4
			3-29	Silty clay loam---	CL, ML	A-6, A-7
			29-42	Silt loam---------	ML	A-4, A-6
NsE3----------	4-10	6+	0-3	Silty clay loam---	CL	A-6, A-7
			3-29	Silty clay loam---	CL, ML	A-6, A-7
			29-42	Silt loam---------	ML	A-4, A-6
Pacolet: PaB2, PaC2, PaD2, PaE2, PaF2.	>10	6+	0-4	Sandy loam--------	SM	A-2, A-4
			4-30	Clay loam, clay---	MH	A-7
			30-72	Sandy loam--------	ML, SM	A-2, A-4
PcB3, PcC3, PcD3, PcE3-----	>10	6+	0-4	Clay loam---------	CL	A-6, A-7
			4-30	Clay loam, clay---	MH	A-7
			30-72	Sandy loam--------	ML, SM	A-2, A-4
Pickens: PkE, PkF----------	0.75-1.75	6+	0-20	Slaty silt loam---	GM, SM, ML	A-4
Rock land: Ro. Properties too variable to rate.						
Rutlege: Ru----------	>20	0-1	0-52	Loamy sand--------	SM	A-2
Starr: Sr----------	>15	4+	0-6	Loam----------	ML	A-4
			6-54	Loam or clay loam-	CL	A-6

SIGNIFICANT IN ENGINEERING--Continued

Percentage passing sieve--				Permeability	Available water capacity	Reaction	Shrink-swell potential
No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)				
				In./hr.	In./in. of soil	pH	
90-100	90-100	90-100	65-75	2.0-6.3	0.17	5.6-6.0	Low.
95-100	95-100	95-100	85-98	0.06-0.20	0.22	6.1-6.5	Very high.
90-100	90-100	85-98	40-75	0.63-2.0	0.16	6.1-7.3	Low.
60-70	60-70	50-70	25-35	2.0-6.3	0.08	5.6-6.5	Low.
50-65	45-60	45-60	40-55	2.0-6.3	0.12	5.6-7.3	Low.
50-65	40-60	40-60	30-35	2.0-6.3	0.12	5.1-6.0	Low.
90-100	90-100	85-98	75-85	2.0-6.3	0.21	5.1-6.0	Low.
90-100	90-100	85-100	60-70	0.63-2.0	0.15	5.1-6.0	Moderate to low.
90-100	90-100	85-100	70-80	0.20-0.63	0.16	5.1-6.0	Moderate to low.
100	100	70-98	25-55	0.63-2.0	0.14	5.6-6.5	Low.
100	100	95-100	75-88	0.06-0.20	0.16	5.6-6.5	Moderate.
100	100	90-100	50-78	0.63-2.0	0.17	5.6-6.5	Low.
100	100	75-98	65-80	0.20-0.63	0.16	5.6-6.5	Low to moderate.
100	100	95-100	75-88	0.06-0.20	0.16	5.6-6.5	Moderate.
100	100	90-100	50-78	0.63-2.0	0.17	5.6-6.5	Low.
90-100	90-100	85-98	60-80	2.0-6.3	0.12	4.5-5.5	Low.
100	100	90-100	85-100	0.63-2.0	0.14	4.5-5.5	Low.
100	100	85-100	70-95	0.63-2.0	0.12	4.5-5.5	Low.
95-100	95-100	95-100	95-100	0.63-2.0	0.14	4.5-5.5	Moderate.
100	100	90-100	85-100	0.63-2.0	0.14	4.5-5.5	Low.
100	100	85-100	70-95	0.63-2.0	0.12	4.5-5.5	Low.
90-100	90-100	85-98	30-45	2.0-6.3	0.09	4.5-5.0	Low.
90-100	90-100	85-100	75-80	0.63-2.0	0.13	5.1-5.5	Moderate to low.
85-100	80-100	80-98	30-55	0.63-2.0	0.12	5.1-5.5	Low.
95-100	90-100	85-98	60-70	0.20-0.63	0.16	4.5-5.0	Low.
90-100	90-100	85-100	75-80	0.63-2.0	0.13	5.1-5.5	Moderate to low.
85-100	80-100	80-98	30-55	0.63-2.0	0.12	5.1-5.5	Low.
40-65	40-65	40-65	40-65	0.63-2.0	0.08	5.1-5.5	Low.
100	100	75-98	10-30	6.3-20.0	0.06	4.5-5.0	Very low.
90-100	90-100	85-98	65-80	2.0-6.3	0.17	5.6-6.5	Low.
90-100	90-100	90-98	55-65	2.0-6.3	0.17	5.1-6.5	Low.

TABLE 8.--ESTIMATES OF SOIL PROPERTIES

Soil series and map symbols	Depth to bedrock	Depth to seasonal high water table	Depth from surface	Classification		
				Dominant USDA texture	Unified	AASHO
	Ft.	Ft.	In.			
Tatum:						
TaD2, TaE2	4-10	6+	0-5	Loam	ML, CL, SM	A-4, A-5
			5-36	Clay	MH, CL	A-7
			36-52	Silt loam	ML	A-4
TcE3	4-10	6+	0-4	Silty clay loam	CL	A-6
			4-36	Clay	MH, CL	A-7
			36-52	Silt loam	ML	A-4
* Vaucluse: VbB, VbC, VbD	>15	6+	0-11	Loamy sand	SP-SM, SM	A-2
For Blaney part of these units, see Blaney series.			11-32	Sandy clay loam	SC, CL	A-4
			32-72	Sandy loam	SC, SM	A-4, A-2
Wagram: WaB, WaC, WaD	15-40	6+	0-25	Sand	SP-SM	A-2
			25-74	Sandy clay loam	SM	A-2
Wedowee: WdE2	5-20	6+	0-4	Sandy loam	ML, SM	A-4
			4-30	Clay loam	MH, CL	A-6, A-7
			30-54	Sandy loam	SM, SC, CL	A-4
*Wehadkee: We	5-20	0-1	0-15	Silty clay loam	ML	A-4
For Chewacla part of this unit, see Chewacla series.			15-50	Sandy clay loam	SC, CL	A-4
			50-55	Silty clay loam	ML, CL	A-6, A-7
Wickham:						
WhB2, WhC2	>15	6+	0-5	Sandy loam	SM	A-2, A-4
			5-32	Sandy clay loam	SC, ML	A-4, A-6
			32-55	Coarse sandy loam	SM	A-2
WkC3	>15	6+	0-4	Sandy clay loam	SC, ML	A-4, A-6
			4-32	Sandy clay loam	SC, ML	A-4, A-6
			32-55	Coarse sandy loam	SM	A-2
Wilkes: WlC2, WlD2, WlF	1.75-4	6+	0-3	Sandy loam	SM, ML	A-4, A-6
			3-13	Clay loam	CL	A-4, A-6
			13-26	Sandy loam	SC, CL	A-4, A-6
Worsham: Wo	>15	1-2	0-6	Fine sandy loam	SM, ML	A-2, A-4
			6-45	Clay loam	ML, SM-SC	A-4, A-7

SIGNIFICANT IN ENGINEERING--Continued

Percentage passing sieve--				Permeability	Available water capacity	Reaction	Shrink-swell potential
No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)	In./hr.	In./in. of soil	pH	
90-100	90-100	90-98	45-80	2.0-6.3	0.13	4.5-5.5	Low.
100	100	95-100	85-95	0.63-2.0	0.15	4.5-5.5	Low.
95-100	95-100	90-100	60-70	2.0-6.3	0.13	4.5-5.5	Low.
95-100	95-100	90-100	65-75	0.63-2.0	0.19	4.5-5.5	Low.
100	100	95-100	85-95	0.63-2.0	0.15	4.5-5.5	Low.
95-100	95-100	90-100	60-70	2.0-6.3	0.13	4.5-5.5	Low.
95-100	90-100	70-95	10-30	6.3-20.0	0.07	5.1-5.5	Very low.
95-100	90-100	85-98	40-55	0.2-0.63	0.08	4.5-5.0	Low.
95-100	90-100	70-95	30-40	2.0-6.3	0.12	4.5-5.5	Low.
100	100	80-95	10-20	6.3-20.0	0.02	5.1-5.5	Very low.
100	100	85-98	20-35	2.0-6.3	0.14	5.1-5.5	Low.
90-100	90-100	75-98	35-55	2.0-6.3	0.14	5.1-5.5	Low.
95-100	90-100	88-98	70-80	0.63-2.0	0.13	4.5-5.5	Low.
90-100	90-100	80-98	40-55	0.63-2.0	0.12	5.1-5.5	Low.
100	100	95-100	80-90	0.63-2.0	0.19	5.1-6.0	Low.
100	100	90-100	40-55	0.63-2.0	0.19	6.1-6.5	Low.
100	100	90-100	80-90	0.63-2.0	0.19	5.6-6.0	Low to moderate.
95-100	90-95	80-95	30-45	2.0-6.3	0.12	5.6-6.0	Low.
95-100	90-100	85-98	40-55	0.63-2.0	0.14	5.1-5.5	Low.
95-100	90-100	60-85	25-35	2.0-6.3	0.08	5.1-5.5	Low.
95-100	90-100	80-98	40-55	0.63-2.0	0.13	5.1-5.5	Low.
95-100	90-100	85-98	40-55	0.63-2.0	0.14	5.1-5.5	Low.
95-100	90-100	60-85	25-35	2.0-6.3	0.08	5.1-5.5	Low.
90-100	90-100	70-95	36-55	0.63-2.0	0.12	5.1-6.0	Low.
80-100	80-100	75-98	51-70	0.20-0.63	0.09-0.14	5.6-7.3	Moderate.
70-100	70-100	65-95	40-55	0.63-2.0	0.12	5.6-7.3	Low.
100	90-95	75-95	30-55	2.0-6.3	0.12	5.1-5.5	Low.
100	90-95	75-95	40-75	0.06-0.20	0.14	4.5-5.0	Low to moderate.

TABLE 9.--ENGINEERING INTERPRETATIONS FOR

[An asterisk in the first column indicates that at least one mapping unit in this series is made up of two or this reason it is necessary to follow carefully the instructions for referring

Soil series and map symbols	Suitability as source of--		Soil features affecting-
	Topsoil	Road fill	Highway location
Altavista---------- Mapped only with Masada soils.	Fair: 18 inches of suitable material.	Fair: fair traffic-supporting capacity.	Moderately well drained; subject to flooding once in 5 years.
*Appling: ApB2, ApC2, ApD2, AsC3, AsD3, AtB2, AtC2, AtD2. For Chesterfield part of AtB2, AtC2, and AtD2, see Chesterfield series.	Fair: 6 to 11 inches of suitable material.	Fair: fair to poor traffic-supporting capacity.	Fair to poor traffic-supporting capacity; slopes more than 6 percent.
Blaney: BlC----------	Poor: sand in upper 26 inches.	Fair: fair traffic-supporting capacity.	Fair traffic-supporting capacity; slopes more than 6 percent.
Blanton: BnB, BnC----------	Poor: sand in upper 63 inches.	Good----------	Slopes more than 6 percent.
Cecil: CcB2, CcC2, CcD2, CcE2, CeB3, CeC3, CeE3.	Poor to fair: 2 to 10 inches of suitable material.	Poor: poor traffic-supporting capacity.	Poor traffic-supporting capacity; slopes more than 6 percent.
Chesterfield---------- Mapped only with Appling soils.	Poor: loamy sand surface layer.	Fair: fair traffic-supporting capacity.	Fair traffic-supporting capacity.
Chewacla: Ch----------	Good: 20 inches of suitable material.	Fair: somewhat poorly drained; fair traffic-supporting capacity.	Floods at least once each year; moderate shrink-swell potential; fair traffic-supporting capacity.
Colfax: ClB----------	Fair: less than 20 inches of suitable material.	Fair: somewhat poorly drained; fair traffic-supporting capacity.	Fair traffic-supporting capacity; somewhat poorly drained.
Congaree: Co----------	Good----------	Fair: fair traffic-supporting capacity.	Floods at least once each year.
Davidson: DaB2, DaC2, DaD2----------	Fair: clay loam surface layer.	Fair to poor: fair to poor traffic-supporting capacity.	Poor to fair traffic-supporting capacity; slopes more than 6 percent.

more kinds of soil. The soils in such mapping units may have different properties and limitations, and for to other series that appear in the first column of this table]

Soil features affecting--Continued				
Farm ponds		Irrigation	Terraces and diversions	Waterways
Reservoirs	Embankments			
Moderate permeability.	Slight to medium compressibility; good to fair resistance to piping and erosion.	Features generally favorable.	Features generally favorable.	Features generally favorable.
Moderate permeability.	Fair slope stability; medium to high compressibility.	Slopes more than 10 percent; moderately slow intake rate on the sandy clay loams.	Slopes more than 10 percent.	Slopes more than 10 percent.
Features generally favorable.	Fair slope stability; good resistance to piping and erosion.	Low available water capacity.	Thick sandy surface layer.	Thick sandy surface layer.
Rapid permeability--	Poor slope stability.	Low available water capacity.	Thick sandy surface layer.	Thick sandy surface layer.
Moderate permeability.	Fair slope stability; high compressibility.	Moderate to slow intake rate; slopes more than 10 percent.	Severe inherent erodibility; slopes more than 10 percent.	Severe inherent erodibility; slopes more than 10 percent.
Moderate permeability.	Medium compressibility.	Slopes more than 10 percent.	Moderate erodibility; slopes more than 10 percent.	Moderate erodibility; slopes more than 10 percent.
Moderate permeability.	Fair to good slope stability; poor to good resistance to piping and erosion.	Features generally favorable.	Features generally favorable.	Features generally favorable.
Features generally favorable.	Fair to good slope stability; poor to good resistance to piping and erosion.	Slow permeability--	Seasonal high water table.	Seasonal high water table.
Moderate permeability.	Medium compressibility.	Features generally favorable.	Frequent flooding---	Frequent flooding.
Moderate permeability.	Fair slope stability; medium to high compressibility.	Moderately slow intake rate; slopes more than 10 percent.	Severe inherent erodibility; slopes more than 10 percent.	Severe inherent erodibility; slopes of more than 10 percent.

TABLE 9.--ENGINEERING INTERPRETATIONS FOR

Soil series and map symbols	Suitability as source of--		Soil features affecting--
	Topsoil	Road fill	Highway location
Durham: DvB, DvB2, DvC2	Poor: loamy sand surface layer.	Fair: fair traffic-supporting capacity.	Fair traffic-supporting capacity.
Enon: EnB2, EnC2, EnE2, EoB3, EoD3	Poor to fair: 3 to 8 inches of suitable material.	Poor: high shrink-swell potential; poor traffic-supporting capacity.	Poor traffic-supporting capacity; high shrink-swell potential; slopes more than 6 percent.
Eustis: EuB, EuD	Poor: loamy sand or sand to a depth of 73 inches.	Good	Slopes more than 6 percent.
Georgeville: GeB2, GeC2, GgB3, GgC3	Poor to fair: 3 to 7 inches of suitable material.	Poor: poor traffic-supporting capacity.	Poor traffic-supporting capacity; moderate shrink-swell potential.
Gills: GlB, GlB2, GlC2	Fair to poor: 5 to 14 inches of suitable material.	Poor: high shrink-swell potential; poor traffic-supporting capacity.	Poor traffic-supporting capacity; high shrink-swell potential.
*Goldston: GpB, GpC For the Pickens part of these units, see Pickens series.	Poor: 35 to 65 percent coarse fragments.	Poor: 35 to 65 percent coarse fragments.	Rock at a depth of 3 feet.
Gullied land: GuC, GuF, GvC, GwF. Properties are too variable to rate.			
Helena: HaB, HaB2, HaC2, HaC3	Poor to fair: 4 to 11 inches of suitable material.	Fair to poor: moderate shrink-swell potential; fair to poor traffic-supporting capacity.	Fair to poor traffic-supporting capacity; moderate shrink-swell potential.
Herndon: HdB2, HdC2, HdD2, HeB3, HeC3	Poor: 3 to 6 inches of suitable material.	Poor: poor traffic-supporting capacity.	Poor traffic-supporting capacity; moderate shrink-swell potential.
Iredell: IrB2, IrC2	Poor: 5 to 10 inches of suitable material; poor workability.	Poor: very high shrink-swell potential; poor workability; poor traffic-supporting capacity.	Very high shrink-swell potential; poor traffic-supporting capacity.

HIGHWAY AND CONSERVATION USES --Continued

Soil features affecting--Continued				
Farm ponds		Irrigation	Terraces and diversions	Waterways
Reservoirs	Embankments			
Moderate permeability.	Poor to good resistance to piping and erosion.	Features generally favorable.	Severe inherent erodibility.	Severe inherent erodibility.
Features generally favorable.	High compressibility.	Slow permeability; slopes more than 10 percent.	Very severe inherent erodibility; slopes more than 10 percent.	Very severe inherent erodibility; slopes more than 10 percent.
Rapid permeability--	Rapid permeability--	Low water-holding capacity.	Thick sandy surface layer.	Thick sandy surface layer.
Moderate permeability.	Medium to high compressibility.	Moderate to slow intake rate.	Severe inherent erodibility.	Severe inherent erodibility.
Features generally favorable.	Medium to high compressibility.	Slow permeability---	Very severe inherent erodibility.	Very severe inherent erodibility.
Moderately rapid permeability.	Fair slope stability; poor resistance to piping and erosion; rock at a depth of 3 feet.	Low available water capacity.	35 to 60 percent rock fragments.	35 to 60 percent rock fragments.
Features generally favorable.	Medium to high compressibility; poor to good resistance to piping and erosion.	Slow permeability---	Very severe inherent erodibility.	Very severe inherent erodibility.
Moderate permeability.	Medium to high compressibility; poor to good resistance to piping and erosion.	Moderate to slow intake rate; slopes more than 10 percent.	Severe inherent erodibility; slopes more than 10 percent.	Severe inherent erodibility; slopes more than 10 percent.
Features generally favorable.	High compressibility.	Slow permeability---	Very severe inherent erodibility; poor workability.	Very severe inherent erodibility; poor workability.

TABLE 9.--ENGINEERING INTERPRETATIONS FOR

Soil series and map symbols	Suitability as source of--		Soil features affecting--
	Topsoil	Road fill	Highway location
Lockhart: LgB, LgC, LgD, LgE, LgF----------	Poor: 35 to 60 percent coarse fragments.	Poor: 35 to 60 percent coarse fragments.	Fair traffic-supporting capacity; slopes more than 6 percent.
*Masada: MaB---------- For Altavista part of this unit, see the Altavista series.	Fair: 6 to 15 inches of suitable material.	Fair: fair traffic-supporting capacity.	Fair traffic-supporting capacity; subject to flooding once every 5 years.
Mecklenburg: McB2, McC2, McD2, MkC3-----	Poor to fair: 3 to 7 inches of suitable material.	Poor: poor traffic-supporting capacity; moderate shrink-swell potential.	Moderate shrink-swell potential; poor traffic-supporting capacity; slopes more than 6 percent.
Nason: NlD2, NlE2, NsE3----------	Poor: less than 6 inches of suitable material.	Fair: fair traffic-supporting capacity.	Fair traffic-supporting capacity; slopes more than 10 percent.
Pacolet: PaB2, PaC2, PaD2, PaE2, PaF2, PcB3, PcC3, PcD3, PcE3.	Poor: less than 6 inches of suitable material.	Poor: poor traffic-supporting capacity.	Poor traffic-supporting capacity; slopes more than 6 percent.
Pickens: PkE, PkF----------	Poor: 35 percent coarse fragments.	Poor: rock at a depth of 8 to 20 inches.	Rock at a depth of 20 inches; slopes more than 15 percent.
Rock land: Ro. Properties are too variable to rate.			
Rutlege: Ru----------	Poor: loamy sand in upper 52 inches.	Poor: very poorly drained.	Very poorly drained----
Starr: Sr----------	Fair: texture and depth vary.	Fair: fair traffic-supporting capacity.	Subject to flooding once every 5 years.
Tatum: TaD2, TaE2, TcE3----------	Poor to fair: 3 to 8 inches of suitable material.	Poor: poor traffic-supporting capacity.	Poor traffic-supporting capacity; slopes more than 10 percent.

Soil features affecting--Continued				
Farm ponds		Irrigation	Terraces and diversions	Waterways
Reservoirs	Embankments			
Moderately rapid permeability.	Poor to good resistance to piping and erosion.	Slopes more than 10 percent.	About 35 to 60 percent coarse sand to fine gravel; slopes more than 10 percent.	Slopes more than 10 percent.
Moderate permeability.	Medium compressibility.	Features generally favorable.	Severe inherent erodibility.	Severe inherent erodibility.
Features generally favorable.	High compressibility.	Moderate to slow intake rate; slow permeability; slopes more than 10 percent.	Very severe inherent erodibility; slopes more than 10 percent.	Very severe inherent erodibility; slopes more than 10 percent.
Moderate permeability.	Medium compressibility; poor to good resistance to piping and erosion.	Slopes more than 10 percent.	Slopes more than 10 percent.	Slopes more than 10 percent.
Moderate permeability.	High compressibility; fair slope stability.	Slopes more than 10 percent.	Slopes more than 10 percent.	Slopes more than 10 percent.
Moderate permeability.	Fair slope stability; rock at a depth of 20 inches; poor resistance to piping and erosion.	Slopes more than 10 percent; low available water capacity.	Rock at a depth of 8 to 20 inches; slopes more than 10 percent.	Rock at a depth of 8 to 20 inches; slopes more than 10 percent.
Rapid permeability--	Slope stability; poor resistance to piping and erosion.	Low available water capacity.	Thick sandy surface-	Thick sandy surface.
Moderately rapid permeability.	Medium to high compressibility; poor to good resistance to piping and erosion.	Features generally favorable.	Features generally favorable.	Features generally favorable.
Moderate permeability.	Medium to high compressibility; good to poor resistance to piping and erosion.	Slopes more than 10 percent; moderately slow intake rate.	Slopes more than 10 percent.	Slopes more than 10 percent.

TABLE 9.--ENGINEERING INTERPRETATIONS FOR

Soil series and map symbols	Suitability as source of--		Soil features affecting--
	Topsoil	Road fill	Highway location
*Vaucluse: VbB, VbC, VbD---------- For Blaney part of these units, see the Blaney series.	Poor: loamy sand surface layer.	Fair: fair traffic-supporting capacity.	Fair traffic-supporting capacity; slopes more than 6 percent.
Wagram: WaB, WaC, WaD----------	Poor: sand in upper 20 to 40 inches.	Good----------	Slopes more than 6 percent.
Wedowee: WdE2----------	Poor to fair: 3 to 7 inches of suitable material.	Fair: fair traffic-supporting capacity.	Fair traffic-supporting capacity; slopes more than 15 percent.
*Wehadkee: We---------- For Chewacla part of this unit, see the Chewacla series.	Fair: texture and depth vary.	Poor: poorly drained.	Poorly drained; floods at least once every year.
Wickham: WhB2, WhC2, WkC3----------	Fair: about 32 inches of suitable material.	Fair: fair traffic-supporting capacity.	Fair traffic-supporting capacity.
Wilkes: WlC2, WlD2, WlF----------	Poor to fair: 3 to 10 inches of suitable material.	Poor: rock at a depth of 20 to 48 inches.	Rock at a depth of 20 to 48 inches; moderate shrink-swell potential.
Worsham: Wo----------	Poor to fair: 4 to 12 inches of suitable material.	Poor: poorly drained.	Poorly drained; floods at least once every year.

HIGHWAY AND CONSERVATION USES --Continued

Soil features affecting--Continued				
Farm ponds		Irrigation	Terraces and diversions	Waterways
Reservoirs	Embankments			
Moderately slow to moderately rapid permeability.	Poor to good resistance to piping and erosion.	Low available water capacity; slopes more than 10 percent.	Loamy sand surface layer; slopes more than 10 percent.	Loamy sand surface layer; slopes more than 10 percent.
Moderately rapid permeability.	Fair slope stability; poor resistance to piping and erosion.	Low available water capacity in upper 20 to 40 inches.	Thick sandy surface layer.	Thick sandy surface layer.
Moderate permeability.	Medium to high compressibility; good to poor resistance to piping and erosion.	Slopes more than 10 percent.	Slopes more than 10 percent.	Slopes more than 10 percent.
Moderate permeability.	Poor to good resistance to piping and erosion.	Slow intake rate----	Poorly drained------	Poorly drained.
Moderate permeability.	Poor to good resistance to piping and erosion.	Features generally favorable.	Severe inherent erodibility.	Severe inherent erodibility.
Moderate permeability.	Rock at a depth of 20 to 48 inches; poor to good resistance to piping and erosion.	Limited root zone; rock at a depth of 20 to 48 inches; slopes more than 10 percent.	Rock at a depth of 20 to 48 inches; slopes more than 10 percent.	Rock at a depth of 20 to 48 inches; limited root zone; slopes more than 10 percent.
Features generally favorable.	Good to poor resistance to piping and erosion.	Features generally favorable.	Poorly drained-----	Poorly drained.

TABLE 10.--LIMITATIONS OF THE SOILS

[An asterisk in the first column indicates that at least one mapping unit in this series is made up of two or this reason it is necessary to follow carefully the instructions

Soil series and map symbols	Sewage lagoons	Septic tank filter fields	Recreational areas	
			Campsites	Picnic areas
Altavista---------- Mapped only with Masada soils.	Moderate: 2 to 6 percent slopes; moderate permeability.	Moderate: seasonal high water table.	Moderate: seasonal high water table.	Moderate: seasonal high water table.
*Appling: ApB2, ApC2, ApD2, AsC3, AsD3, AtB2, AtC2, AtD2. For Chesterfield part of AtB2, AtC2, and AtD2, see Chesterfield series.	Moderate if slope is 2 to 7 percent, severe if more than 7 percent; moderate permeability.	Moderate if slope is 2 to 10 percent, severe if more than 10 percent; moderate permeability.	Slight if surface layer is fine sandy loam and slope is 2 to 8 percent, moderate if surface layer is sandy clay loam and slope is 2 to 15 percent or if surface layer is fine sandy loam and slope is 8 to 15 percent.	Slight if surface layer is fine sandy loam and slope is 2 to 8 percent, moderate if surface layer is sandy clay loam and slope is 2 to 15 percent or if surface layer is fine sandy loam and slope is 8 to 15 percent.
Blaney: BlC---------	Severe: slopes more than 7 percent.	Severe: slow permeability.	Moderate: 6 to 10 percent slopes; sandy surface layer more than 20 inches thick.	Moderate: sandy surface layer more than 20 inches thick.
Blanton: BnB, BnC---	Severe: rapid permeability.	Slight if slope is 0 to 5 percent, moderate if 5 to 10 percent, severe if more than 10 percent; rapid permeability.	Severe: loose sandy surface layer more than 20 inches thick.	Severe: loose sandy surface layer more than 20 inches thick.
Cecil: CcB2, CcC2, CcD2, CcE2, CeB3, CeC3, CeE3.	Moderate if slope is 2 to 7 percent, severe if more than 7 percent; moderate permeability.	Moderate if slope is 2 to 10 percent, severe if more than 10 percent; moderate permeability.	Slight if surface layer is fine sandy loam and slope is 2 to 8 percent, moderate if surface layer is clay loam and slopes are 2 to 15 percent, severe if slope is more than 15 percent.	Slight if surface layer is fine sandy loam and slope is 2 to 8 percent, moderate if surface layer is clay loam and slope is 2 to 15 percent or if surface layer is fine sandy loam and slope is 8 to 15 percent, severe if slope is more than 15 percent.
Chesterfield--------- Mapped only with Appling soils.	Moderate if slope is 2 to 7 percent, severe if more than 7 percent; moderate permeability.	Moderate if slope is 2 to 10 percent, severe if more than 7 percent; moderate permeability.	Slight if slope is 2 to 8 percent, moderate if 8 to 15 percent.	Slight if slope is 2 to 8 percent, moderate if 8 to 15 percent.

more kinds of soil. The soils in such mapping units may have different properties and limitations, and for for referring to other series that appear in the first column of this table]

Recreational areas--Continued		Foundations for low buildings	Sites for light industry	Local roads and streets
Playgrounds	Paths and trails			
Moderate: seasonal high water table.	Slight----------	Severe: occasional flooding.	Severe: occasional flooding.	Moderate: moderately well drained.
Moderate if slope is 2 to 6 percent, severe if more than 6 percent.	Slight if surface layer is fine sandy loam, moderate if sandy clay loam.	Moderate: fair bearing strength.	Moderate if slope is 2 to 8 percent, severe if more than 8 percent; fair bearing strength.	Moderate: fair traffic-supporting capacity.
Severe: 6 to 10 percent slopes; sandy surface layer more than 20 inches thick.	Severe: sandy surface layer more than 20 inches thick.	Moderate: 6 to 10 percent slopes.	Moderate if slope is 6 to 8 percent, severe if more than 8 percent; moderate corrosion potential.	Moderate: fair traffic-supporting capacity.
Severe: sandy surface layer more than 20 inches thick.	Severe: sandy surface layer more than 20 inches thick.	Slight if slope is 0 to 6 percent, moderate if 6 to 15 percent.	Slight if slope is 0 to 4 percent, moderate if 4 to 8 percent, severe if more than 8 percent.	Slight if slope is 2 to 6 percent, moderate if 6 to 15 percent.
Moderate if slope is 2 to 6 percent, severe if more than 6 percent.	Slight if surface layer is fine sandy loam and slope is 2 to 15 percent, moderate if surface layer is clay loam and slope is 2 to 25 percent or if surface layer is fine sandy loam and slope is 15 to 25 percent.	Moderate if slope is 2 to 15 percent, severe if more than 15 percent; fair bearing strength.	Moderate if slope is 2 to 8 percent, severe if more than 8 percent; fair bearing strength.	Moderate if slope is 2 to 15 percent, severe if more than 15 percent; fair traffic-supporting capacity.
Moderate if slope is 2 to 6 percent, severe if 6 percent or more.	Slight----------	Slight if slope is 2 to 6 percent, moderate if 6 to 15 percent.	Moderate if slope is 2 to 8 percent, severe if above 8 percent; fair bearing strength.	Slight if slope is 2 to 6 percent, moderate if 6 to 15 percent.

TABLE 10.--LIMITATIONS OF THE SOILS FOR

Soil series and map symbols	Sewage lagoons	Septic tank filter fields	Recreational areas	
			Campsites	Picnic areas
Chewacla: Ch---------	Moderate if protected from flood damage; moderate permeability.	Severe: frequent flooding; seasonal high water table.	Severe: frequent flooding; seasonal high water table.	Moderate: frequent flooding; seasonal high water table.
Colfax: ClB----------	Moderate: 2 to 6 percent slopes.	Severe: slow permeability.	Moderate: somewhat poorly drained; slow permeability.	Moderate: somewhat poorly drained.
Congaree: Co---------	Moderate: moderate permeability.	Severe: frequent flooding.	Severe: frequent flooding.	Moderate: frequent flooding.
Davidson: DaB2, DaC2, DaD2.	Moderate if slope is 2 to 7 percent, severe if more than 7 percent; moderate permeability.	Slight if slope is 2 to 5 percent, moderate if 5 to 10 percent, severe if more than 10 percent.	Moderate: clay loam surface layer.	Moderate: clay loam surface layer.
Durham: DvB, DvB2, DvC2.	Moderate if slope is 2 to 7 percent, severe if more than 7 percent; moderate permeability.	Slight if slope is 2 to 5 percent, moderate if 5 to 10 percent.	Slight if slope is 2 to 8 percent, moderate if 8 to 10 percent.	Slight if slope is 2 to 8 percent, moderate if 8 to 10 percent.
Enon: EnB2, EnC2, EnE2, EoB3, EoD3.	Moderate if slope is 2 to 7 percent, severe if more than 7 percent; rock at a depth of 3 to 5 feet.	Severe: slow permeability.	Moderate: slow permeability. Severe if slope is more than 15 percent.	Slight if surface layer is loam and slope is 2 to 8 percent, moderate if surface layer is clay loam and slope is 2 to 15 percent, severe if slope is more than 15 percent.
Eustis: EuB, EuD-----	Severe: rapid to moderately rapid permeability.	Slight if slope is 0 to 5 percent, moderate if 5 to 10 percent, severe if more than 10 percent.	Moderate: loamy sand surface layer more than 20 inches thick.	Moderate: loamy sand surface layer more than 20 inches thick.
Georgeville: GeB2, GeC2, GgB3, GgC3.	Moderate if slope is 2 to 7 percent, severe if more than 7 percent; moderate permeability.	Moderate if slope is 2 to 10 percent, severe if more than 10 percent; moderate permeability.	Slight if surface layer is silt loam and slope is 0 to 8 percent, moderate if surface layer is silty clay loam and slope is 2 to 15 percent or if surface layer is silt loam and slope is 8 to 15 percent.	Slight if surface layer is silt loam and slope is 2 to 8 percent, moderate if surface layer is silty clay loam or if surface layer is silt loam and slope is 8 to 15 percent.

Recreational areas--Continued		Foundations for low buildings	Sites for light industry	Local roads and streets
Playgrounds	Paths and trails			
Severe: frequent flooding; seasonal high water table.	Moderate: frequent flooding; high water table.	Severe: frequent flooding; high water table.	Severe: frequent flooding; seasonal high water table.	Severe: frequent flooding; seasonal high water table.
Moderate: somewhat poorly drained; slow permeability.	Moderate: somewhat poorly drained.	Severe: somewhat poorly drained; subject to ponding.	Severe: somewhat poorly drained; subject to ponding.	Moderate: somewhat poorly drained.
Severe: frequent flooding.	Moderate: frequent flooding.	Severe: frequent flooding.	Severe: frequent flooding.	Severe: frequent flooding.
Moderate if slope is 2 to 6 percent, severe if more than 6 percent.	Moderate: clay loam surface layer.	Moderate: fair bearing strength.	Moderate if slope is 2 to 8 percent, severe if more than 8 percent; fair bearing strength.	Moderate: fair traffic-supporting capacity.
Moderate if slope is 2 to 6 percent, severe if 6 percent or more.	Slight----------	Slight if slope is 2 to 6 percent, moderate if 6 to 10 percent.	Moderate if slope is 2 to 8 percent, severe if more than 8 percent; moderate corrosion potential.	Slight if slope is 2 to 6 percent, moderate if 6 to 10 percent.
Moderate if slope is 2 to 6 percent, severe if 6 percent or more; slow permeability.	Slight if surface layer is loam and slope is 2 to 15 percent, moderate if surface layer is clay loam and slope is 2 to 25 percent or if surface layer is loam and slope is 15 to 25 percent.	Severe: low bearing strength.	Severe: low bearing strength.	Severe: high shrink-swell potential; poor traffic-supporting capacity.
Moderate if surface layer is loamy sand more than 20 inches thick and slope is 0 to 6 percent, severe if slope is 6 percent or more.	Moderate: loamy sand surface layer more than 20 inches thick.	Slight if slope is 0 to 6 percent, moderate if 6 to 15 percent.	Slight if slope is 0 to 4 percent, moderate if 4 to 8 percent, severe if more than 8 percent.	Slight if slope is 0 to 6 percent, moderate if 6 to 15 percent.
Moderate if slope is 2 to 6 percent, severe if 6 percent or more.	Slight if surface layer is silt loam, moderate if silty clay.	Moderate: fair bearing strength.	Moderate if slope is 2 to 8 percent, severe if more than 8 percent; fair bearing strength.	Severe: poor traffic-supporting capacity.

Soil series and map symbols	Sewage lagoons	Septic tank filter fields	Recreational areas	
			Campsites	Picnic areas
Gills: GlB, GlB2, GlC2.	Moderate if slope is 2 to 7 percent, severe if more than 7 percent.	Severe: slow permeability.	Moderate: slow permeability.	Slight if slope is 2 to 8 percent, moderate if 8 to 10 percent.
*Goldston: GpB, GpC--- For Pickens part of these units, see the Pickens series.	Severe: rock at a depth of 3 feet.	Severe: rock at a depth of 3 feet.	Slight if slope is 2 to 8 percent, moderate if 8 to 10 percent.	Slight if slope is 2 to 8 percent, moderate if 8 to 10 percent.
Helena: HaB, HaB2, HaC2, HaC3.	Moderate if slope is 2 to 7 percent, severe if more than 7 percent.	Severe: slow permeability.	Moderate: slow permeability.	Slight if slope is 2 to 8 percent, moderate if 8 to 10 percent.
Herndon: HdB2, HdC2, HdD2, HeB3, HeC3.	Moderate if slope is 2 to 7 percent, severe if more than 7 percent; moderate permeability.	Moderate if slope is 2 to 10 percent, severe if more than 10 percent; moderate permeability.	Slight if surface layer is silt loam and slope is 2 to 8 percent, moderate if surface layer is silty clay and slope is 2 to 15 percent or if surface layer is silt loam and slope is 8 to 15 percent.	Slight if surface layer is silt loam and slope is 2 to 8 percent, moderate if surface layer is silty clay and slope is 2 to 15 percent or if surface layer is silt loam and slope is 8 to 15 percent.
Iredell: IrB2, IrC2--	Moderate if slope is 2 to 7 percent, severe if more than 7 percent; rock at a depth of 3 feet.	Severe: slow permeability.	Severe: seasonal high water table.	Moderate: moderately well drained; seasonal high water table.
Lockhart: LgB, LgC, LgD, LgE, LgF.	Severe: moderately rapid permeability.	Slight if slope is 2 to 5 percent, moderate if 5 to 10 percent, severe if more than 10 percent.	Moderate if slope is 2 to 15 percent, severe if more than 15 percent; 30 percent coarse fragments in surface layer.	Moderate if slope is 2 to 15 percent, severe if more than 15 percent; 30 percent coarse fragments in surface layer.
*Masada: MaB---------- For Altavista part of this unit, see Altavista series.	Moderate: moderate permeability.	Slight if slope is 2 to 5 percent, moderate if 5 to 6 percent.	Slight----------	Slight----------

Recreational areas--Continued		Foundations for low buildings	Sites for light industry	Local roads and streets
Playgrounds	Paths and trails			
Moderate if slope is 2 to 6 percent, severe if 6 percent or more; slow permeability.	Slight----------	Severe: low bearing strength.	Severe: low bearing strength.	Severe: poor traffic-supporting capacity.
Moderate if slope is 2 to 6 percent, severe if 6 percent or more; rock at a depth of 3 feet.	Slight if slope is 2 to 10 percent.	Slight if slope is 2 to 6 percent, severe if more than 6 percent; rock at a depth of 3 feet.	Slight if slope is 2 to 4 percent, severe if more than 4 percent; rock at a depth of 3 feet.	Severe: rock at a depth of 3 feet.
Moderate if slope is 2 to 6 percent; severe if 6 percent or more; slow permeability.	Slight----------	Moderate: fair bearing strength; moderately well drained.	Moderate if slope is 2 to 8 percent; corrosion potential.	Severe: poor traffic-supporting capacity.
Moderate if slope is 2 to 6 percent, severe if 6 percent or more.	Slight if surface layer is silt loam, moderate if silty clay loam.	Moderate: fair bearing strength.	Moderate if slope is 2 to 8 percent, severe if more than 8 percent; fair bearing strength; moderate corrosion potential.	Severe: poor traffic-supporting capacity.
Severe: seasonal high water table.	Moderate: high water table.	Severe: low bearing strength.	Severe: very high shrink-swell potential; low bearing strength.	Severe: poor traffic-supporting capacity; very high shrink-swell potential.
Severe: 30 percent coarse fragments in surface layer.	Moderate if slope is 2 to 25 percent, severe if more than 25 percent; 30 percent coarse fragments in surface layer.	Slight if slope is 2 to 6 percent, moderate if 6 to 15 percent, severe if more than 15 percent.	Slight if slope is 2 to 4 percent, moderate if 4 to 8 percent, severe if more than 8 percent.	Slight if slope is 2 to 6 percent, moderate if 6 to 15 percent, severe if more than 15 percent.
Moderate: slope is 2 to 6 percent.	Slight----------	Slight----------	Slight if slope is 2 to 4 percent, moderate if 4 to 6 percent.	Slight.

TABLE 10.--LIMITATIONS OF THE SOILS FOR

Soil series and map symbols	Sewage lagoons	Septic tank filter fields	Recreational areas	
			Campsites	Picnic areas
Mecklenburg: McB2, McC2, McD2, MkC3.	Moderate if slope is 2 to 7 percent, severe if more than 7 percent.	Severe: slow permeability.	Moderate: slow permeability.	Slight if surface layer is fine sandy loam and slope is 2 to 8 percent, moderate if surface layer is clay loam and slope is 2 to 15 percent or if surface layer is fine sandy loam and slope is 8 to 15 percent.
Nason: NlD2, NlE2, NsE3.	Severe: slope is more than 10 percent.	Severe: slope is more than 10 percent.	Moderate if slope is 10 to 15 percent, severe if more than 15 percent.	Moderate if slope is 10 to 15 percent, severe if more than 15 percent.
Pacolet: PaB2, PaC2, PaD2, PaE2, PaF2, PcB3, PcC3, PcD3, PcE3.	Moderate if slope is 2 to 7 percent, severe if more than 7 percent; moderate permeability.	Slight if slope is 2 to 5 percent, moderate if 5 to 10 percent, severe if more than 10 percent.	Slight if surface layer is sandy loam and slope is 2 to 8 percent, moderate if surface layer is clay loam and slope is 0 to 15 percent or if surface layer is sandy loam and slope is 8 to 15 percent, severe if slope is more than 15 percent.	Slight if surface layer is sandy loam and slope is 2 to 8 percent, moderate if surface layer is clay loam and slope is 2 to 15 percent or if surface layer is sandy loam and slope is 8 to 15 percent, severe if slope is more than 15 percent.
Pickens: PkE, PkF-----	Severe: rock at depth of 8 to 20 inches.	Severe: rock at a depth of 8 to 20 inches.	Moderate if slope is 10 to 15 percent, severe if more than 15 percent.	Moderate if slope is 10 to 15 percent, severe if more than 15 percent.
Rutlege: Ru----------	Severe: rapid permeability.	Severe: high water table; frequent flooding.	Severe: high water table; frequent flooding.	Severe: high water table; frequent flooding.
Starr: Sr----------	Severe: moderately rapid permeability.	Severe: frequent flooding.	Severe: frequent flooding; seasonal high water table.	Moderate: frequent flooding; seasonal high water table.

Recreational areas--Continued		Foundations for low buildings	Sites for light industry	Local roads and streets
Playgrounds	Paths and trails			
Moderate if slope is 2 to 6 percent, severe if 6 percent or more.	Slight if surface layer is fine sandy loam and slope is 2 to 15 percent, moderate if surface layer is clay loam and slope is 2 to 25 percent or if surface layer is fine sandy loam and slope is 15 to 25 percent.	Severe: low bearing strength.	Severe: low bearing strength.	Severe: poor traffic-supporting capacity.
Severe: slope is 10 to 25 percent.	Slight if surface layer is loam and slope is 10 to 15 percent, moderate if surface layer is silty clay loam and slope is 10 to 25 percent or if surface layer is loam and slope is 15 to 25 percent.	Moderate if slope is 10 to 15 percent, severe if more than 15 percent; fair bearing strength.	Severe: slope is more than 10 percent.	Moderate if slope is 10 to 15 percent, severe if more than 15 percent; fair traffic-supporting capacity.
Moderate if slope is 2 to 6 percent, severe if 6 percent or more.	Slight if surface layer is sandy loam and slope is 2 to 15 percent, moderate if surface layer is clay loam and slope is 2 to 25 percent or if surface layer is sandy loam and slope is 15 to 25 percent, severe if slope is more than 25 percent.	Moderate if slope is 2 to 15 percent, severe if more than 15 percent; fair bearing strength.	Moderate if slope is 2 to 8 percent, severe if more than 8 percent; fair bearing strength.	Severe: poor traffic-supporting capacity.
Severe: slope is more than 10 percent.	Slight if slope is 10 to 15 percent, moderate if 15 to 25 percent, severe if above 25 percent.	Severe: rock at a depth of 8 to 20 inches.	Severe: rock at a depth of 20 inches; slope is more than 10 percent.	Severe: rock at a depth of 8 to 20 inches.
Severe: high water table; frequent flooding.	Severe: high water table; frequent flooding.	Severe: very poorly drained; high water table.	Severe: high water table; frequent flooding.	Severe: high water table; frequent flooding.
Severe: frequent flooding; seasonal high water table.	Moderate: frequent flooding; seasonal high water table.	Severe: frequent flooding.	Severe: frequent flooding.	Severe: frequent flooding.

TABLE 10.--LIMITATIONS OF THE SOILS FOR

Soil series and map symbols	Sewage lagoons	Septic tank filter fields	Recreational areas	
			Campsites	Picnic areas
Tatum: TaD2, TaE2, TcE3.	Severe: slope is more than 10 percent.	Severe: slope is more than 10 percent.	Moderate if slope is 10 to 15 percent, severe if more than 15 percent.	Moderate if slope is 10 to 15 percent, severe if more than 15 percent.
* Vaucluse: VbB, VbC, VbD. For Blaney part of these units, see the Blaney series.	Moderate if slope is 2 to 7 percent, severe if more than 7 percent.	Severe: moderately slow permeability.	Moderate: moderately slow permeability; slope is 8 to 15 percent.	Slight if slope is 2 to 8 percent, moderate if 8 to 15 percent.
Wagram: WaB, WaC, WaD.	Severe: moderately rapid permeability in upper 20 to 40 inches.	Slight if slope is 2 to 5 percent, moderate if 5 to 10 percent, severe if more than 10 percent.	Severe: loose sand surface layer more than 20 inches thick.	Severe: loose sand surface layer more than 20 inches thick.
Wedowee: WdE2---------	Severe: slope is 10 to 25 percent.	Severe: slope is 10 to 25 percent.	Moderate if slope is 10 to 15 percent, severe if more than 15 percent.	Moderate if slope is 10 to 15 percent, severe if more than 15 percent.
* Wehadkee: We---------- For Chewacla part of this unit, see the Chewacla series.	Moderate if protected from flood damage; moderate permeability.	Severe: frequent flooding; seasonal high water table.	Severe: frequent flooding; seasonal high water table.	Severe: frequent flooding; seasonal high water table.
Wickham: WhB2, WhC2, WkC3.	Moderate if slope is 2 to 7 percent, severe if more than 7 percent.	Slight if slope is 2 to 5 percent, moderate if 5 to 10 percent.	Slight if surface layer is sandy loam and slope is 2 to 8 percent, moderate if surface layer is sandy loam and slope is 8 to 10 percent.	Slight if surface layer is sandy loam and slope is 2 to 8 percent, moderate if surface layer is sandy clay loam and slope is 2 to 10 percent or if surface layer is sandy loam and slope is 8 to 10 percent.

Recreational areas--Continued		Foundations for low buildings	Sites for light industry	Local roads and streets
Playgrounds	Paths and trails			
Severe: slope is more than 10 percent.	Slight if surface layer is loam and slope is 10 to 15 percent, moderate if surface layer is silty clay loam and slope is 10 to 25 percent or if surface layer is loam and slope is 15 to 25 percent.	Moderate if slope is 10 to 15 percent, severe if more than 15 percent; fair bearing strength.	Severe: slope is more than 10 percent.	Moderate if slope is 10 to 15 percent, severe if more than 15 percent; fair traffic-supporting capacity.
Moderate if slope is 2 to 6 percent, severe if 6 percent or more.	Slight----------	Moderate: fair bearing strength.	Moderate if slope is 2 to 8 percent, severe if more than 8 percent; fair bearing strength.	Moderate: fair traffic-supporting capacity.
Severe: sand surface layer more than 20 inches thick.	Severe: sand surface layer more than 20 inches thick.	Slight if slope is 2 to 6 percent, moderate if 6 to 15 percent.	Slight if slope is 2 to 4 percent, moderate if 4 to 8 percent, severe if more than 8 percent.	Slight if slope is 2 to 6 percent, moderate if 6 to 15 percent.
Severe: slope is more than 10 percent.	Slight if slope is 10 to 15 percent, moderate if 15 to 25 percent.	Moderate if slope is 10 to 15 percent, severe if more than 15 percent; fair bearing strength.	Severe: slope is more than 10 percent.	Moderate if slope is 10 to 15 percent, severe if more than 15 percent; fair traffic-supporting capacity.
Severe: frequent flooding; seasonal high water table.	Severe: frequent flooding; seasonal high water table.	Severe: frequent flooding; poorly drained.	Severe: frequent flooding; poorly drained.	Severe: frequent flooding; poorly drained.
Moderate if slope is 2 to 6 percent, severe if 6 percent or more.	Slight if surface layer is sandy loam, moderate if sandy clay loam.	Slight if slope is 2 to 6 percent, moderate if 6 to 10 percent.	Slight if slope is 2 to 4 percent, moderate if 4 to 8 percent, severe if more than 8 percent.	Slight if slope is 2 to 6 percent, moderate if 6 to 10 percent.

TABLE 10.--LIMITATIONS OF THE SOILS FOR

Soil series and map symbols	Sewage lagoons	Septic tank filter fields	Recreational areas	
			Campsites	Picnic areas
Wilkes: W1C2, W1D2, W1F.	Severe: rock at a depth of 20 to 48 inches.	Severe: rock at a depth of 20 to 48 inches; moderately slow permeability.	Moderate if slope is 15 percent, severe if more than 15 percent; moderately slow permeability.	Slight if slope is 6 to 8 percent, moderate if 8 to 15 percent, severe if more than 15 percent.
Worsham: Wo----------	Slight if protected from flood damage.	Severe: high water table; slow permeability.	Severe: high water table; poorly drained.	Severe: high water table; poorly drained.

Recreational areas--Continued		Foundations for low buildings	Sites for light industry	Local roads and streets
Playgrounds	Paths and trails			
Severe: slope is 6 percent or more.	Slight if slope is 6 to 15 percent, moderate if 15 to 25 percent, severe if more than 25 percent.	Severe: rock at a depth of 20 to 48 inches.	Moderate if slope is 6 to 8 percent, severe if more than 8 percent; fair bearing strength; rock at a depth of 20 to 48 inches.	Severe: rock at a depth of 20 to 48 inches.
Severe: high water table; poorly drained.	Severe: high water table; poorly drained.	Severe: poorly drained; high water table.	Severe: high water table; poorly drained.	Severe: poorly drained.

Local roads and streets.--These are streets in residential areas and roads that can be built at a low cost. Only small cuts and fills and little preparation of subgrade are required in construction. Factors used in rating the limitations are slope, depth to rock, depth of the water table, hazard of flooding, erodibility, and traffic-supporting capacity.

FORMATION AND CLASSIFICATION OF THE SOILS

This section tells how the factors of soil formation have affected the formation of soils in Lancaster County, and it describes some of the processes responsible for the formation of horizons. It explains the current system of soil classification and classifies each soil series in the county according to this system.

Factors of Soil Formation

Soil is the product of soil-forming processes acting on accumulated or deposited geologic material. The five important factors in soil formation are parent material, climate, living organisms (plants and animals), relief, and time.

Climate and living organisms are the active forces of soil formation. Their effect on the parent material is modified by relief and by the length of time the parent material has been in place. The relative importance of each factor differs from place to place. In some places one factor dominates in the formation and fixes most of the properties of the soil formed, but normally the interaction of all five factors determines what kind of soil is formed at any given place.

Although soil formation is complex, some understanding of the soil-forming processes may be gained by considering each of the five factors separately.

Parent Material

Parent material is the unconsolidated mass from which a soil forms. It has much to do with the mineral and chemical composition of the soils. In Lancaster County the parent material was derived from three sources: residuum from the parent rock, recent alluvium deposited by streams, and marine sediment of the Sandhills region.

Residual parent material forms in place through the weathering of the underlying rock. Soils that formed in this material occupy about 83 percent of the county. For the most part, the rocks of Lancaster County are argillite, mica gneiss, hornblende gneiss, granite, diorite and gabbro, and ultramafic intrusions.

Argillite is the principal rock type in the area known as the slate belt. This unit consists of poorly bedded to massive argillite, well-laminated argillite, tuffaceous argillite, siltstone, and fine-grained graywacke.

Mica gneiss contains deeply weathered minerals of quartz, feldspar, and mica. The chief minerals in hornblende gneiss are quartz, feldspar, and hornblende, but in places this rock contains variable amounts of biotite mica and chlorite. The thick layers of residuum consist of clay mixed with fragments of gneiss and with the minerals quartz and mica.

The granite in Lancaster County is massive or weakly foliated. It occurs as an intrusion into the gneiss and schist. In general, the granite consists of quartz, orthoclase and plagioclase feldspar, biotite and muscovite mica, and of vermiculite and other accessory minerals in varying amounts. The residuum covering the granite ranges from a few inches to many feet in thickness.

Diorite and gabbro are coarse textured, distinctly massive, and not closely jointed. They consist chiefly of hornblende, pyroxene, and plagioclase feldspar and varying amounts of quartz and accessory minerals. In some areas flat rocks showing little weathering crop out, but in most areas the rocks are deeply weathered and are covered with a thick layer of soil.

The ultramafic intrusions consist chiefly of peridotite and pyroxenite. The chief mineral of peridotite is olivine, and that of pyroxenite is pyroxene. The ultramafic rock has been altered a great deal by metamorphism and by hydration, but weathering is slow and barren rock crops out in places.

The sericitic schist unit consists principally of white or gray sericite phyllite, quartz mica schist, kyanite muscovite schist, or muscovite schist (7).

The recent alluvium in Lancaster County consists of a mixture of gravel, sand, silt, and clay. Much of this alluvium weathered from rock in the uplands nearby, but some weathered from granite, gneiss, schist, slate, and metamorphosed rock of the Piedmont Plateau. The soils that formed in recent alluvium are on the bottom lands and low terraces. The soils on first bottoms are weakly developed and still receive deposits during floods, but the soils on high terraces and on benches have been in place long enough to show developed horizons.

The marine sediments of the Sandhills region in Lancaster County are a part of the Brandywine and Coharie Terraces. The soils in this area formed in material that was transported by the Atlantic Ocean and streams and deposited as beds of unconsolidated sand and clay (3).

Climate

Climate is important in the formation of soils. Lancaster County has a temperate climate. Rainfall is well distributed throughout the year. Information on temperature and precipitation can be found under the heading "Climate" in the section "Additional Facts About the County."

Climate, particularly precipitation and temperature, affects the physical, chemical, and biological relationships in the soil. Water dissolves minerals,

aids chemical and biological activity, and transports the dissolved mineral and organic material through the soil profile. Large amounts of rainfall promote leaching of the soluble ions and the translocation of the less soluble and colloidal material downward through the soil profile. A long frost-free season and heavy rainfall result in the downward movement of fine-textured soil material and the loss of plant nutrients.

The amount of water that percolates through the soil depends on the amount of rainfall, the relative humidity, and the length of the frost-free season. Percolation, or the downward movement of water, also is affected by relief, or lay of the land, and by permeability of the soil material. Weathering of the parent material is intensified if the percolation is interrupted only by brief periods of shallow freezing. A high average temperature therefore speeds weathering. A high average temperature also increases the number and kinds of living organisms in the soil, and the organisms, in turn, affect soil formation.

Relief

Relief, or lay of the land, influences soil formation because of its effect on moisture, temperature, and erosion. This influence, however, is modified somewhat by the influence of the other soil-forming factors.

In Lancaster County slopes range from 0 to 40 percent. Most soils on uplands that have slopes of less than 15 percent have a thick, well-developed profile. On slopes of 15 to 40 percent, geologic erosion removes soil material almost as fast as it forms. As a result some soils have thin, weakly defined profiles. The most extensive soils are gently sloping to strongly sloping and have not been adversely affected by relief.

On stream bottom lands and terraces, slopes range from 0 to about 10 percent. Here the soils are young because the parent material has been in place for a relatively short time.

Living Organisms

The number and kinds of plants and animals that live in and on the soil are determined mainly by the climate, but also, to a lesser extent, by parent material, relief, and age of the soil.

Bacteria, fungi, and other micro-organisms are indispensable in soil formation. They hasten the weathering of rock and the decomposition of organic matter. Larger plants alter the soil microclimate, furnish organic matter, and transfer chemical elements from the subsoil to the surface soil.

Most of the fungi, bacteria, and other micro-organisms in the soils of Lancaster County are in the upper few inches of soil. The activity of earthworms and other small invertebrates is chiefly in the A horizon and upper part of the B horizon, where these organisms slowly but continuously mix the soil material. Bacteria and fungi decompose organic matter and release nutrients for plant use.

Animals play a secondary role in soil formation, but their influence is great. In eating plants they perform one step in returning plant material to the soil.

The native vegetation in the uplands was chiefly oak, hickory, shortleaf pine, Virginia pine, and loblolly pine. On the well-drained bottom lands it was mainly yellow-poplar, sweetgum, ash, beech, sycamore trees, and an abundant growth of canes. The trees on the poorly drained bottom lands were chiefly willow and birch.

Time

The length of time required for the formation of a soil depends largely on the intensity of the other soil-forming factors. The soils in Lancaster County range from immature, or young, to mature. Young soils have very little profile development, and mature soils have well-defined horizons.

On the smoother parts of the uplands and on the older stream terraces, the soils are generally mature. On the steeper slopes, geologic erosion has removed the soil material almost as rapidly as it has formed. Consequently, the soils on these slopes are shallow and have little profile development in most places. On first bottoms of streams and in areas of local alluvium, the soils are young because the material has not been in place long enough for soil horizons to form.

Processes of Soil Formation

The formation of well-defined horizons in a soil profile is the result of the interaction of factors of soil formation. Most of the soils in Lancaster County have strongly developed horizons. A few soils, however, have weakly developed horizons. The mature soils are in equilibrium with the soil-forming factors; the subsoil contains considerable clay and has strong subangular blocky or blocky structure.

The development of horizons is the result of one or more of these main processes: (1) accumulation of organic matter; (2) leaching of carbonates and salts; (3) translocation of silicate clay minerals; and (4) reduction and transfer of iron. In most of the profiles, two or more of these processes have operated in the development of horizons.

Some organic matter has accumulated in the upper layer of nearly all soils in the county, and an A1 horizon has formed. Much of this organic matter is in the form of humus. Generally the quantity is very small, and in most areas the A1 horizon has been destroyed by cultivation or accelerated erosion.

Leaching of carbonates and bases has taken place in all soils in Lancaster County but has been of limited importance in the development of horizons. In many soils, however, leaching has had the indirect

effect of permitting the translocation of silicate clay minerals. Leaching also has completely removed carbonates and salts from the profile of some soils. Nearly all soils in the county are medium acid to strongly acid.

Translocation of silicate clay has contributed to the development of almost all the soils except those that formed in recent alluvium. This translocation is one of the more important processes in the formation of horizons in the older soils in the county. Many of the soils show strong translocation of clay from the A horizon and high accumulation of clay in the B horizon. Clay films in root channels and on ped faces indicate that silicate clay has moved from the A horizon into the B horizon.

The reduction and transfer of iron, called gleying, has occurred in all of the poorly drained and somewhat poorly drained soils in the county.

In some soils iron has been segregated in some horizons to form mottles of yellowish red, strong brown, or yellowish brown. In other soils iron has formed concretions in the lower horizons.

Classification of the Soils 7/

Classification consists of an orderly grouping of soils according to a system designed to make it easier to remember soil characteristics and interrelationships. Classification is useful in organizing and applying the results of experience and research. Soils are placed in narrow classes for discussion in detailed soil surveys and for application of knowledge within farms and fields. The many thousands of narrow classes are then grouped into progressively fewer and broader classes in successively higher categories, so that information can be applied to large geographic areas.

Two systems of classifying soils have been used in the United States in recent years. The older system was adopted in 1938 (2) and revised later (10). The system currently used by the National Cooperative Soil Survey was developed in the early sixties (9) and was adopted in 1965 (14). It is under continual study.

The current system of classification has six categories. Beginning with the most inclusive, these categories are the order, the suborder, the great group, the subgroup, the family, and the series. The criteria for classification are soil properties that are observable or measurable, but the properties are selected so that soils of similar genesis are grouped together. The placement of some soil series in the current system of classification, particularly in families, may change as more precise information becomes available.

Table 11 shows the classification of each soil series of Lancaster County by family, subgroup, and order.

7/ By R. D. WELLS, assistant State soil scientist, Soil Conservation Service.

Order.--Ten soil orders are recognized in the current system. They are Alfisols, Aridisols, Entisols, Histosols, Inceptisols, Mollisols, Oxisols, Spodosols, Ultisols, and Vertisols. The properties used to separate the orders are those that give broad climatic groupings of soils. Two exceptions are Entisols and Histosols, which occur in many different climates. Because of the importance climate has on soil formation, the orders to some extent are climatic zonal groups, and they tend to have definite geographic ranges. Four soil orders--Alfisols, Entisols, Inceptisols, and Ultisols--are recognized in Lancaster County.

Suborder.--Each order is divided into suborders, primarily on the basis of soil characteristics that reflect either the presence or absence of waterlogging or the differences in climate and vegetation. The following six suborders are in Lancaster County: Aquepts, Aquults, Fluvents, Ochrepts, Udalfs, and Udults. Udults make up the largest percentage of soils in the county. The suborder is not shown in table 11.

Great Group.--Each suborder is divided into great groups on the basis of presence or absence of diagnostic horizons and the sequence of those horizons. The diagnostic horizons are those that contain illuvial clay, iron, and humus; or they are thick, dark-colored surface horizons, or horizons in which a pan interferes with water movement or root development. Other features are the colors dark brown and dark red that are associated with basic rock, the major differences in chemical composition, and the wide differences in base saturation. The name of the great group may be derived from the last name of the subgroup. There are nine great groups classified in Lancaster County. They are Dystrochrepts, Fluvaquents, Fragiudults, Hapludalfs, Hapludults, Humaquepts, Ochraquults, Paleudults, and Udifluvents. The great group is not shown in table 11.

Subgroup.--Each great group is divided into subgroups, one representing the central (typic) concept of the group, and others, called intergrades, representing the soils that have mostly the properties of one great group but also one or more properties of the soils of another great group, suborder, or order. The names of subgroups are derived by placing one or more adjectives before the name of the great group. An example is Typic Hapludults. Appling soils, for example, are typical Hapludults.

Family.--Families are established within a subgroup primarily on the basis of properties important to the growth of plants. Among the properties considered are texture, consistence, permeability, reaction, mineralogy, soil temperature, depth of soil, moisture equivalent, and slope or shape. An example is the sandy, siliceous, thermic family in which Eustis soils are classified.

Series.--The soil series has the narrowest range of characteristics of the categories in the classification system. It is explained in the section "How This Survey Was Made." There are 35 soil series recognized in this county. A detailed description of each is given in the section "Descriptions of the Soils."

TABLE 11.--SOIL SERIES CLASSIFIED ACCORDING TO THE CURRENT SYSTEM

Series	Family	Subgroup	Order
Altavista	Fine-loamy, mixed, thermic	Aquic Hapludults	Ultisols.
Appling	Clayey, kaolinitic, thermic	Typic Hapludults	Ultisols.
Blaney	Sandy, siliceous, thermic	Arenic Fragiudults	Ultisols.
Blanton	Loamy, siliceous, thermic	Grossarenic Paleudults	Ultisols.
Cecil	Clayey, kaolinitic, thermic	Typic Hapludults	Ultisols.
Chesterfield	Clayey, kaolinitic, thermic	Typic Hapludults	Ultisols.
Chewacla	Fine-loamy, mixed, thermic	Fluvaquentic Dystrochrepts	Inceptisols.
Colfax	Fine-loamy, mixed, thermic	Aquic Fragiudults	Ultisols.
Congaree	Fine-loamy, mixed, nonacid, thermic	Typic Udifluvents	Entisols.
Davidson	Clayey, kaolinitic, thermic	Rhodic Paleudults	Ultisols.
Durham	Fine-loamy, siliceous, thermic	Typic Hapludults	Ultisols.
Enon	Fine, mixed, thermic	Ultic Hapludalfs	Alfisols.
Eustis	Sandy, siliceous, thermic	Psammentic Paleudults	Ultisols.
Georgeville	Clayey, kaolinitic, thermic	Typic Hapludults	Ultisols.
Gills	Clayey, mixed, thermic	Aquic Fragiudults	Ultisols.
Goldston	Loamy-skeletal, siliceous, thermic	Ruptic-Ultic Dystrochrepts	Inceptisols.
Helena	Clayey, mixed, thermic	Aquic Hapludults	Ultisols.
Herndon	Clayey, kaolinitic, thermic	Typic Hapludults	Ultisols.
Iredell	Fine, montmorillonitic, thermic	Typic Hapludalfs	Alfisols.
Lockhart	Loamy-skeletal, mixed, thermic	Typic Hapludults	Ultisols.
Masada	Fine-loamy, mixed, thermic	Typic Hapludults	Ultisols.
Mecklenburg	Fine, mixed, thermic	Ultic Hapludalfs	Alfisols.
Nason	Clayey, mixed, thermic	Typic Hapludults	Ultisols.
Pacolet	Clayey, kaolinitic, thermic	Typic Hapludults	Ultisols.
Pickens	Loamy-skeletal, mixed, thermic	Lithic Dystrochrepts	Inceptisols.
Rutlege	Sandy, siliceous, thermic	Typic Humaquepts	Inceptisols.
Starr 1/	Fine-loamy, mixed, thermic	Fluventic Dystrochrepts	Inceptisols.
Tatum	Clayey, mixed, thermic	Typic Hapludults	Ultisols.
Vaucluse 2/	Fine-loamy, siliceous, thermic	Typic Fragiudults	Ultisols.
Wagram	Loamy, siliceous, thermic	Arenic Paleudults	Ultisols.
Wedowee	Clayey, kaolinitic, thermic	Typic Hapludults	Ultisols.
Wehadkee	Fine-loamy, mixed, nonacid, thermic	Typic Fluvaquents	Entisols.
Wickham	Fine-loamy, mixed, thermic	Typic Hapludults	Ultisols.
Wilkes	Loamy, mixed, thermic, shallow	Typic Hapludalfs	Alfisols.
Worsham	Clayey, mixed, thermic	Typic Ochraquults	Ultisols.

1/ The Starr soils in Lancaster County are taxadjuncts to the Starr series because the brown colors are outside the defined range of the Starr series.

2/ The Vaucluse soils in Lancaster County are taxadjuncts to the Vaucluse series because the Bt horizon has yellower colors than the defined range for the Vaucluse series.

ADDITIONAL FACTS ABOUT THE COUNTY

Before 1750, Lancaster County was covered with hardwood trees, chiefly oak, hickory, and chestnut. Smaller stands of beech, poplar, ash, and sycamore grew in the lowland. The large trees depressed brush and undergrowth to the extent that deer and buffalo could be seen grazing at great distances. Trout, rock, red horse, and perch were abundant in the streams. Lord Cornwallis described the area as "possessing long stretches of beautiful valleys and glorious highlands."

The first permanent settlement in the district of Lancaster was in 1751. The settlers cut and burned the woods to plant wheat, Indian corn, and hemp, and after 1790, cotton. When a field became eroded and unproductive the settlers would move and clear another area, leaving the field exposed to the hazard of erosion. In 1880, bales of cotton grown in South Carolina numbered 516,490.

The period 1790 to 1935 may well go down in history as the most destructive and wasteful period of the soil, woodland, and wildlife resources in Lancaster County.

The climate, physiography, drainage, and geology of Lancaster County are described in the paragraphs that follow.

Climate[8/]

The climate of Lancaster County is mild and temperate, and rainfall is well distributed throughout the year. See table 12. The day-to-day weather is controlled largely by pressure systems across the nation. In summer, however, there are relatively few complete exchanges of air masses, and tropical maritime air persists for extended periods. Records on wind, humidity, and sunshine are not available for Lancaster County or from any of the adjoining counties. Records from Charlotte, N. C., the nearest area, and information interpolated from the National Atlas of the United States indicate that the prevailing winds are from the southwest, except in fall when they are northeasterly. The average windspeed is 8 miles per hour. According to records kept at Charlotte, N. C., the strongest windspeed in recent years for a 1-minute period is 57 miles per hour. The latest averages of relative humidity at 1:00 p.m. vary from a maximum of 60 percent in December and January to a minimum of 49 percent in April and May. The overall average relative humidity is about 70 percent. In Lancaster County, about 72 days each year have 0.10 inch or more of measurable precipitation, about 31 days have half an inch or more, and about 13 days have 1 inch.

The heaviest annual rainfall, 69.59 inches, in the last 35 years was recorded at Kershaw in 1929. The lowest annual rainfall, 30.19 inches, was recorded at Kershaw in 1933. During the year the sun is visible an average of 65 percent of the daylight hours. The percentages range from the low 50's during the winter to the low 70's during the summer. The skies are cloudy to overcast about 43 percent of the time. About 4 percent of the time the cloud bases are below 500 feet, and 9 percent of the time they are below 1,000 feet.

Summer is the rainiest season, and autumn is the driest. A secondary dry period occurs in May. There have been two disastrous droughts in the past 50 years. Minor droughts occur about once in 7 years. Temperatures reach or exceed 90° F. on an average of 70 days in the summer and reach or exceed 100° on an average of 3 days. The average length of the growing season is 7 1/2 months. The average date for the last frost in spring is March 28, and the average date for the first in fall is November 11. Other statistics about temperature appear in table 13.

Thunderstorms and tornadoes sometimes occur in Lancaster County, but there have been only three tornadoes in the past 56 years. The period March through June is the period during which most of the severe weather occurs. Tropical storms and hurricanes occur occasionally in South Carolina, but Lancaster County is far enough from the coast to escape severe damage from these storms. Tropical weather occurs from July through October. September is the most likely hurricane month. When the weather is clear and the winds are calm or light, air drainage during the night is toward the west to the Catawba River and south along the Catawba-Wateree River system, which is the western border of the county. Minimum temperatures are a few degrees lower at the lower elevations than on the ridge throughout the year under the described conditions, and maximum temperatures are a little higher on the ridge during the warm season.

[8/] By HOLBROOK LANDERS, climatologist for South Carolina, National Weather Service, U.S. Department of Commerce.

Physiography

Lancaster County is on the lower Piedmont Plateau and is fringed with the Sandhills and the Upper Coastal Plains in the southeast corner. It is thoroughly dissected. Relief ranges from gently sloping to steep. Gentle to strong slopes are dominant. Steep slopes occur along drainageways. Most steep slopes are medium to short along the main streams and short along smaller streams. There are no distinguishing "high hills" in the county.

The general slope of the county is from northwest to southeast. Elevations range from about 700 feet on ridges near Sapps Crossroads in the northeastern part of the county to 300 feet on Lynches River at the southeast corner.

Drainage

The drainage pattern of the county is dendritic. The Catawba, Lynches, and Little Lynches Rivers are the main drainage systems leaving the county. Wildcat and Flat Creeks are the main tributaries of the Lynches River in the eastern part of the county; and Twelve Mile, Camp, Cane, Hannah's, Bear, and Turkey Creeks are the main tributaries of the Catawba River drainage system in the western part. Little Lynches River and its tributaries affect a small segment of the county between the Kershaw-Pleasant Hill area and State Highway No. 903 and leave the county just west of Kershaw.

The bottom lands are nearly level, commonly undulating, and mostly narrow. A few along the Catawba River are as much as 1,000 feet wide. Most of the bottom land consists of moderately well drained stream deposits.

Geology

The rock underlying Lancaster County soils includes a wide range of granite, gneiss, schist, and argillite. Soils of the Sandhills and Upper Coastal Plains occupy a fairly narrow belt from the Heath Springs-Kershaw area northeast to Lynches River (see General Soil Map). Rock formations extend from the southwest to northeast. Crystalline formations occupy the northern part of the county, and sericitic schist occupies a narrow belt northeast of Van Wyck. A large area from Pleasant Hill-Lancaster west to northeast of Lancaster is largely crystalline. Porphyritic granite occurs in the Lancaster-Great

TABLE 12.--TEMPERATURE AND PRECIPITATION

[All data are from Kershaw and Lancaster Counties except data in column 8, which are from Charlotte, Mecklenburg County, N.C.]

Month	Temperature				Precipitation				
	Average daily maximum	Average daily minimum	Two years in 10 will have at least 4 days with--		Average total	One year in 10 will have--		Days with snow cover of 1 inch or more	Average depth of snow cover
			Maximum temperature equal to or higher than--	Minimum temperature equal to or lower than--		Less than--	More than--		
	°F.	°F.	°F.	°F.	Inches	Inches	Inches	Number	Inches
January----	56	34	72	19	3.4	1.7	6.1	1	0.9
February---	58	35	73	21	3.5	1.4	6.4	(1/)	.3
March------	65	31	79	26	3.8	1.9	6.7	(1/)	.4
April------	74	50	86	38	4.1	1.8	6.7	0	0
May--------	83	58	92	47	3.0	1.3	5.3	0	0
June-------	89	66	97	57	3.9	2.0	6.5	0	0
July-------	91	69	97	63	5.9	3.1	8.6	0	0
August-----	89	68	97	61	5.3	2.7	7.9	0	0
September--	84	63	93	50	4.0	1.2	6.7	0	0
October----	76	51	85	38	2.6	.5	5.5	0	0
November---	65	41	79	27	2.7	.7	5.0	0	(2/)
December---	55	34	71	20	3.5	1.4	6.3	(1/)	.7
Year----	73	51	3/ 101	4/ 13	45.7	35.5	55.0	2	2.3

1/ Less than 0.5 day.

2/ Less than 0.05 inch.

3/ Average annual maximum.

4/ Average annual minimum.

TABLE 13.--PROBABILITIES OF LAST FREEZING TEMPERATURES IN SPRING AND FIRST IN FALL

[All data from Kershaw and Lancaster Counties, S.C.]

Probability	Dates for given probability and temperature		
	24° F. or lower	28° F. or lower	32° F. or lower
Spring:			
1 year in 10 later than----------	March 21	April 3	April 18
2 years in 10 later than----------	March 14	March 27	April 11
5 years in 10 later than----------	February 28	March 13	March 28
Fall:			
1 year in 10 earlier than----------	November 16	November 4	October 27
2 years in 10 earlier than----------	November 22	November 10	November 1
5 years in 10 earlier than----------	December 3	November 20	November 11

Falls-Pleasant Hill quarter. Argillite occupies the central northeastern part of the county, Kershaw-Lancaster-Tradesville, north of the Sandhills.

Large boulders crop out in the northern part of the county in the Pleasant Hill-Great Falls-Lancaster area, and in the "Forty-Acre Rock" section in the Taxahaw Community. Sizeable areas of exposed bedrock occur at "Forty-Acre Rock," and in the 2- to 3-acre areas west of Heath Springs in the Stoneboro vicinity.

There are a number of diabasic dikes, presumably Triassic age, that form intrusions through the argillite, granite, schist, and the basic (diorite, amphibolite, and gabbro) rocks in the county. Valuable minerals have been found between quartz veins that are dissected by basic dikes, believed to have formed 180 to 225 million years ago.

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Alluvium. Soil material, such as sand, silt, or clay, that has been deposited on land by streams.

Available water capacity (also termed available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil.

Channery soil. A soil that contains thin, flat fragments of sandstone, limestone, or schist, as much as 6 inches in length along the longer axis. A single piece is called a fragment.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrations of compounds, or of soil grains cemented together. The composition of some concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are examples of material commonly found in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are--

Loose.--Noncoherent when dry or moist; does not hold together in a mass.

Friable.--When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.--When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.--When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.--When wet, adheres to other material, and tends to stretch somewhat and pull apart, rather than to pull free from other material.

Hard.--When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.--When dry, breaks into powder or individual grains under very slight pressure.

Cemented.--Hard and brittle; little affected by moistening.

Drainage class (natural). Refers to the conditions of frequency and duration of periods of saturation or partial saturation that existed during the development of the soil, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven different classes of natural soil drainage are recognized.

Excessively drained soils are commonly very porous and rapidly permeable and have a low water-holding capacity.

Somewhat excessively drained soils are also very permeable and are free from mottling throughout their profile.

Well-drained soils are nearly free from mottling and are commonly of intermediate texture.

Moderately well drained soils commonly have a slowly permeable layer in or immediately beneath the solum. They have uniform color in the A and upper B horizons and have mottling in the lower B and the C horizons.

Somewhat poorly drained soils are wet for significant periods but not all the time, and some soils commonly have mottling at a depth below 6 to 16 inches.

Poorly drained soils are wet for long periods and are light gray and generally mottled from the surface downward, although mottling may be absent or nearly so in some soils.

Very poorly drained soils are wet nearly all the time. They have a dark-gray or black surface layer and are gray or light gray, with or without mottling, in the deeper parts of the profile.

Flood plain. Nearly level land, consisting of stream sediments, that borders a stream and is subject to flooding unless protected artificially.

Fragipan. A loamy, brittle, subsurface horizon that is very low in organic-matter content and clay but is rich in silt or very fine sand. The layer is seemingly cemented. When dry, it is hard or very hard and has a high bulk density in comparison with the horizon or horizons above it. When moist, the fragipan tends to rupture suddenly if pressure is applied, rather than to deform slowly. The layer is generally mottled, is slowly or very slowly permeable to water, and has few or many bleached fracture planes that form polygons. Fragipans are a few inches to several feet thick; they generally occur below the B horizon, 15 to 40 inches below the surface.

Galled area. Small area from which topsoil has been removed by erosion.

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes. These are the major horizons:

O horizon.--The layer of organic matter on the surface of a mineral soil. This layer consists of decaying plant residues.

A horizon.--The mineral horizon at the surface or just below an O horizon. This horizon is the one in which living organisms are most active and therefore is marked by the accumulation of humus. The horizon may have lost one or more of soluble salts, clay, and sesquioxides (iron and aluminum oxides).

B horizon.--The mineral horizon below an A horizon. The B horizon is in part a layer of change from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics caused (1) by accumulation of clay, sesquioxides, humus, or some combination of these; (2) by prismatic or blocky structure; (3) by redder or stronger colors than the A horizon; or (4) by some combination of these. Combined A and B horizons are usually called the solum, or true soil. If a soil lacks a B horizon, the A horizon alone is the solum.

C horizon.--The weathered rock material immediately beneath the solum. In most soils this material is presumed to be like that from which the overlying horizons were formed. If the material is known to be different from that in the solum, a Roman numeral precedes the letter C.

R layer.--Consolidated rock beneath the soil. The rock usually underlies a C horizon but may be immediately beneath an A or B horizon.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Leaching. The removal of soluble material from soils or other material by percolating water.

Mottling, soil. Irregularly marked with spots of different colors that vary in number and size. Mottling in soils usually indicates poor aeration and lack of drainage. Descriptive terms are as follows: Abundance--few, common, and many; size--fine, medium, and coarse; and contrast--faint, distinct, and prominent. The size measurements are these: fine, less than 5 millimeters (about 0.2 inch) in diameter along the greatest dimension; medium, ranging from 5 millimeters to 15 millimeters (about 0.2 to 0.6 inch) in diameter along the greatest dimension; and coarse, more than 15 millimeters (about 0.6 inch) in diameter along the greatest dimension.

Parent material. Disintegrated and partly weathered rock from which soil has formed.

Percolation. The downward movement of water through the soil.

Permeability. The quality that enables the soil to transmit water or air. Terms used to describe permeability are as follows: very slow, slow, moderately slow, moderate, moderately rapid, and very rapid.

Productivity (of soil). The present capability of a soil for producing a specified plant or sequence of plants under a specified system of management. It is measured in terms of output, or harvest, in relation to input of production for the specific kind of soil under a specified system of management.

Profile, soil. A vertical section of the soil through all its horizons and extending into the parent material.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is precisely neutral in reaction because it is neither acid nor alkaline. An acid, or "sour," soil is one that gives an acid reaction; an alkaline soil is one that is alkaline in reaction. In words, the degrees of acidity or alkalinity are expressed thus:

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Sand. Individual rock or mineral fragments in a soil that range in diameter from 0.05 to 2.0 millimeters. Most sand grains consist of quartz, but they may be of any mineral composition. The textural class name of any soil that contains 85 percent or more sand and not more than 10 percent clay.

Silt. Individual mineral particles in a soil that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). Soil of the silt textural class is 80 percent or more silt and less than 12 percent clay.

Soil. A natural, three-dimensional body on the earth's surface that supports plants and that has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the parent material, in which the processes of soil formation are active. The solum in mature soil includes the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristic of the soil are largely confined to the solum.

Structure, soil. The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. The principal forms of soil structure are--platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), and granular. Structureless soils are either single grain (each grain by itself, as in dune sand) or massive (the particles adhering together without any regular cleavage, as in many claypans and hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. Technically, the part of the soil below the solum.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, about 5 to 8 inches in thickness. The plowed layer.

Terrace (geological). An old alluvial plain, ordinarily flat or undulating, bordering a river, lake, or the sea. Stream terraces are frequently called second bottoms, as contrasted to flood plains, and are seldom subject to overflow. Marine terraces were deposited by the sea and are generally wide.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Tilth, soil. The condition of the soil in relation to the growth of plants, especially soil structure. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable, granular structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Upland (geology). Land consisting of material unworked by water in recent geologic time and lying, in general, at a higher elevation than the alluvial plain or stream terrace. Land above the lowlands along rivers.

Water table. The highest part of the soil or underlying rock material that is wholly saturated with water. In some places an upper, or perched, water table may be separated from a lower one by a dry zone.

GUIDE TO MAPPING UNITS

For complete information about a mapping unit, read both the description of the mapping unit and that of the soil series to which the mapping unit belongs. For complete information about a capability unit, read both the introduction "Crops and Pasture" and the description of the capability unit in this section. For information about the suitability of soils for woodland and wildlife, read the introduction to these sections and refer to the tables in each section. Other information is given in tables as follows:

Acreage and extent, table 1, page 8.
Suitability for specified crops, table 2, page 54.
Estimated yields, table 3, page 60.
Use of the soils in engineering, tables 7, 8, and 9, pages 88 through 107.
Limitations of soils in town and country planning, table 10, page 108.

Map symbol	Mapping unit	Described on page	Capability unit		Woodland group
			Symbol	Page	Number
ApB2	Appling fine sandy loam, 2 to 6 percent slopes, eroded	11	IIe-2	48	3o7
ApC2	Appling fine sandy loam, 6 to 10 percent slopes, eroded	11	IIIe-2	49	3o7
ApD2	Appling fine sandy loam, 10 to 15 percent slopes, eroded	11	IVe-1	50	3o7
AsC3	Appling sandy clay loam, 6 to 10 percent slopes, severely eroded	11	IVe-1	50	4c2e
AsD3	Appling sandy clay loam, 10 to 15 percent slopes, severely eroded	12	VIe-1	52	4c2e
AtB2	Appling and Chesterfield soils, 2 to 6 percent slopes, eroded	12	IIe-2	48	3o7
AtC2	Appling and Chesterfield soils, 6 to 10 percent slopes, eroded	12	IIIe-2	49	3o7
AtD2	Appling and Chesterfield soils, 10 to 15 percent slopes, eroded	12	IVe-1	50	3o7
BlC	Blaney sand, 6 to 10 percent slopes	13	IIIe-4	50	4s2
BnB	Blanton sand, 0 to 6 percent slopes	14	IVs-1	51	3s2
BnC	Blanton sand, 6 to 15 percent slopes	14	VIs-1	52	3s2
CcB2	Cecil fine sandy loam, 2 to 6 percent slopes, eroded	15	IIe-1	48	3o7
CcC2	Cecil fine sandy loam, 6 to 10 percent slopes, eroded	15	IIIe-1	49	3o7
CcD2	Cecil fine sandy loam, 10 to 15 percent slopes, eroded	15	IVe-1	50	3o7
CcE2	Cecil fine sandy loam, 15 to 25 percent slopes, eroded	15	VIe-1	52	3r8
CeB3	Cecil clay loam, 2 to 6 percent slopes, severely eroded	15	IIIe-1	49	4c2e
CeC3	Cecil clay loam, 6 to 10 percent slopes, severely eroded	15	IVe-1	50	4c2e
CeE3	Cecil clay loam, 10 to 25 percent slopes, severely eroded	16	VIIe-1	52	4c3e
Ch	Chewacla soils	17	IIIw-2	50	1w8
ClB	Colfax fine sandy loam, 2 to 6 percent slopes	18	IIIw-3	50	3w8
Co	Congaree soils	18	IIw-2	49	1o7
DaB2	Davidson clay loam, 2 to 6 percent slopes, eroded	19	IIe-1	48	3o7
DaC2	Davidson clay loam, 6 to 10 percent slopes, eroded	19	IIIe-1	49	3o7
DaD2	Davidson clay loam, 10 to 15 percent slopes, eroded	19	IVe-1	50	3o7
DvB	Durham loamy sand, 2 to 6 percent slopes	20	IIe-2	48	3o7
DvB2	Durham loamy sand, 2 to 6 percent slopes, eroded	20	IIe-2	48	3o7
DvC2	Durham loamy sand, 6 to 10 percent slopes, eroded	20	IIIe-2	49	3o7
EnB2	Enon loam, 2 to 6 percent slopes, eroded	21	IIe-3	48	4o1
EnC2	Enon loam, 6 to 10 percent slopes, eroded	21	IIIe-3	49	4o1
EnE2	Enon loam, 10 to 25 percent slopes, eroded	22	VIe-3	52	4r2
EoB3	Enon clay loam, 2 to 6 percent slopes, severely eroded	22	IIIe-3	49	4c2e
EoD3	Enon clay loam, 6 to 15 percent slopes, severely eroded	22	VIe-3	52	4c2e
EuB	Eustis loamy sand, 0 to 6 percent slopes	22	IVs-1	51	3s2
EuD	Eustis loamy sand, 6 to 15 percent slopes	23	VIs-1	52	3s2
GeB2	Georgeville silt loam, 2 to 6 percent slopes, eroded	23	IIe-1	48	3o7
GeC2	Georgeville silt loam, 6 to 10 percent slopes, eroded	24	IIIe-1	49	3o7
GgB3	Georgeville silty clay loam, 2 to 6 percent slopes, severely eroded	24	IIIe-1	49	4c2e
GgC3	Georgeville silty clay loam, 6 to 10 percent slopes, severely eroded	24	IVe-1	50	4c2e
GlB	Gills silt loam, 2 to 6 percent slopes	25	IIIe-4	50	5w2
GlB2	Gills silt loam, 2 to 6 percent slopes, eroded	25	IVe-2	50	5w2
GlC2	Gills silt loam, 6 to 10 percent slopes, eroded	25	VIe-3	52	5w2

GUIDE TO MAPPING UNITS--Continued

Map symbol	Mapping unit	Described on page	Capability unit		Woodland group
			Symbol	Page	Number
GpB	Goldston-Pickens complex, 2 to 6 percent slopes	26			
	Goldston soil	--	IVe-3	51	4o1
	Pickens soil	--	IVe-3	51	4d2
GpC	Goldston-Pickens complex, 6 to 10 percent slopes	26			
	Goldston soil	--	IVe-3	51	4o1
	Pickens soil	--	IVe-3	51	4d2
GuC	Gullied land, Cecil soil material, sloping	26	VIIe-2	52	---
GuF	Gullied land, Cecil soil material, steep	26	VIIe-2	52	---
GvC	Gullied land, Georgeville soil material, sloping	27	VIIe-2	52	---
GwF	Gullied land, Helena soil material, steep	27	VIIe-2	52	---
HaB	Helena fine sandy loam, 2 to 6 percent slopes	27	IIe-3	48	3w8
HaB2	Helena fine sandy loam, 2 to 6 percent slopes, eroded	28	IIIe-3	49	3w8
HaC2	Helena fine sandy loam, 6 to 10 percent slopes, eroded	28	IVe-2	50	3w8
HaC3	Helena fine sandy loam, 2 to 10 percent slopes, severely eroded	28	IVe-2	50	3w8
HdB2	Herndon silt loam, 2 to 6 percent slopes, eroded	29	IIe-2	48	3o7
HdC2	Herndon silt loam, 6 to 10 percent slopes, eroded	29	IIIe-2	49	3o7
HdD2	Herndon silt loam, 10 to 15 percent slopes, eroded	29	IVe-1	50	3o7
HeB3	Herndon silty clay loam, 2 to 6 percent slopes, severely eroded	29	IIIe-2	49	4c2e
HeC3	Herndon silty clay loam, 6 to 10 percent slopes, severely eroded	29	IVe-1	50	4c2e
IrB2	Iredell complex, 2 to 6 percent slopes, eroded	30	IIe-4	49	4c2
IrC2	Iredell complex, 6 to 10 percent slopes, eroded	30	IVe-2	50	4c2
LgB	Lockhart gravelly sandy loam, 2 to 6 percent slopes	31	IIe-2	48	3o7
LgC	Lockhart gravelly sandy loam, 6 to 10 percent slopes	31	IIIe-2	49	3o7
LgD	Lockhart gravelly sandy loam, 10 to 15 percent slopes	32	IVe-1	50	3o7
LgE	Lockhart gravelly sandy loam, 15 to 25 percent slopes	32	VIIe-1	52	3r8
LgF	Lockhart gravelly sandy loam, 25 to 40 percent slopes	32	VIIe-1	52	3r8
MaB	Masada and Altavista soils, 2 to 6 percent slopes	33			
	Masada soil	--	IIe-1	48	3o7
	Altavista soil	--	IIe-1	48	2w8
McB2	Mecklenburg fine sandy loam, 2 to 6 percent slopes, eroded	33	IIe-3	48	4o1
McC2	Mecklenburg fine sandy loam, 6 to 10 percent slopes, eroded	34	IIIe-3	49	4o1
McD2	Mecklenburg fine sandy loam, 10 to 15 percent slopes, eroded	34	IVe-2	50	4o1
MkC3	Mecklenburg clay loam, 6 to 10 percent slopes, severely eroded	34	IVe-2	50	4c2e
NlD2	Nason loam, 10 to 15 percent slopes, eroded	35	IVe-1	50	3o7
NlE2	Nason loam, 15 to 25 percent slopes, eroded	35	VIe-1	52	3r8
NsE3	Nason silty clay loam, 10 to 25 percent slopes, severely eroded	35	VIIe-1	52	4c3e
PaB2	Pacolet sandy loam, 2 to 6 percent slopes, eroded	36	IIe-1	48	3o7
PaC2	Pacolet sandy loam, 6 to 10 percent slopes, eroded	36	IIIe-1	49	3o7
PaD2	Pacolet sandy loam, 10 to 15 percent slopes, eroded	36	IVe-1	50	3o7
PaE2	Pacolet sandy loam, 15 to 25 percent slopes, eroded	36	VIe-1	52	3r8
PaF2	Pacolet sandy loam, 25 to 40 percent slopes, eroded	36	VIIe-1	52	3r8
PcB3	Pacolet clay loam, 2 to 6 percent slopes, severely eroded	37	IIIe-1	49	4c2e
PcC3	Pacolet clay loam, 6 to 10 percent slopes, severely eroded	37	IVe-1	50	4c2e
PcD3	Pacolet clay loam, 10 to 15 percent slopes, severely eroded	37	VIe-1	52	4c2e
PcE3	Pacolet clay loam, 15 to 25 percent slopes, severely eroded	37	VIIe-1	52	4c3e
PkE	Pickens slaty silt loam, 10 to 25 percent slopes	38	VIe-2	52	4d2
PkF	Pickens slaty silt loam, 25 to 35 percent slopes	38	VIIe-2	52	4d3
Ro	Rock land	38	VIIs-2	52	---

GUIDE TO MAPPING UNITS--Continued

Map symbol	Mapping unit	Described on page	Capability unit		Woodland group
			Symbol	Page	Number
Ru	Rutlege loamy sand	38	Vw-2	52	2w3
Sr	Starr soils	39	IIw-2	49	1o7
TaD2	Tatum loam, 10 to 15 percent slopes, eroded	40	IVe-1	50	4o1
TaE2	Tatum loam, 15 to 25 percent slopes, eroded	40	VIe-1	52	4r2
TcE3	Tatum silty clay loam, 10 to 25 percent slopes, severely eroded	41	VIIe-1	52	4c3e
VbB	Vaucluse and Blaney loamy sands, 2 to 6 percent slopes-				
	Vaucluse soil	--	IIe-5	49	3o1
	Blaney soil	--	IIe-5	49	4s2
VbC	Vaucluse and Blaney loamy sands, 6 to 10 percent slopes	41			
	Vaucluse soil	--	IIIe-4	50	3o1
	Blaney soil	--	IIIe-4	50	4s2
VbD	Vaucluse and Blaney loamy sands, 10 to 15 percent slopes	41			
	Vaucluse soil	--	IVe-4	51	3o1
	Blaney soil	--	IVe-4	51	4s2
WaB	Wagram sand, 2 to 6 percent slopes	42	IIs-1	49	3s2
WaC	Wagram sand, 6 to 10 percent slopes	42	IIIe-5	50	3s2
WaD	Wagram sand, 10 to 15 percent slopes	42	IVe-5	51	3s2
WdE2	Wedowee sandy loam, 10 to 25 percent slopes, eroded	43	VIe-1	52	3r8
We	Wehadkee and Chewacla soils	44			
	Wehadkee	--	IVw-1	51	1w9
	Chewacla	--	IVw-1	51	1w8
WhB2	Wickham sandy loam, 2 to 6 percent slopes, eroded	44	IIe-1	48	3o7
WhC2	Wickham sandy loam, 6 to 10 percent slopes, eroded	44	IIIe-1	49	3o7
WkC3	Wickham sandy clay loam, 6 to 10 percent slopes, severely eroded	45	IVe-1	50	4c2e
WlC2	Wilkes sandy loam, 6 to 10 percent slopes, eroded	45	IVe-3	51	4o1
WlD2	Wilkes sandy loam, 10 to 15 percent slopes, eroded	45	VIe-2	52	4o1
WlF	Wilkes sandy loam, 15 to 35 percent slopes	46	VIIe-2	52	4r2
Wo	Worsham fine sandy loam	46	Vw-1	51	2w8

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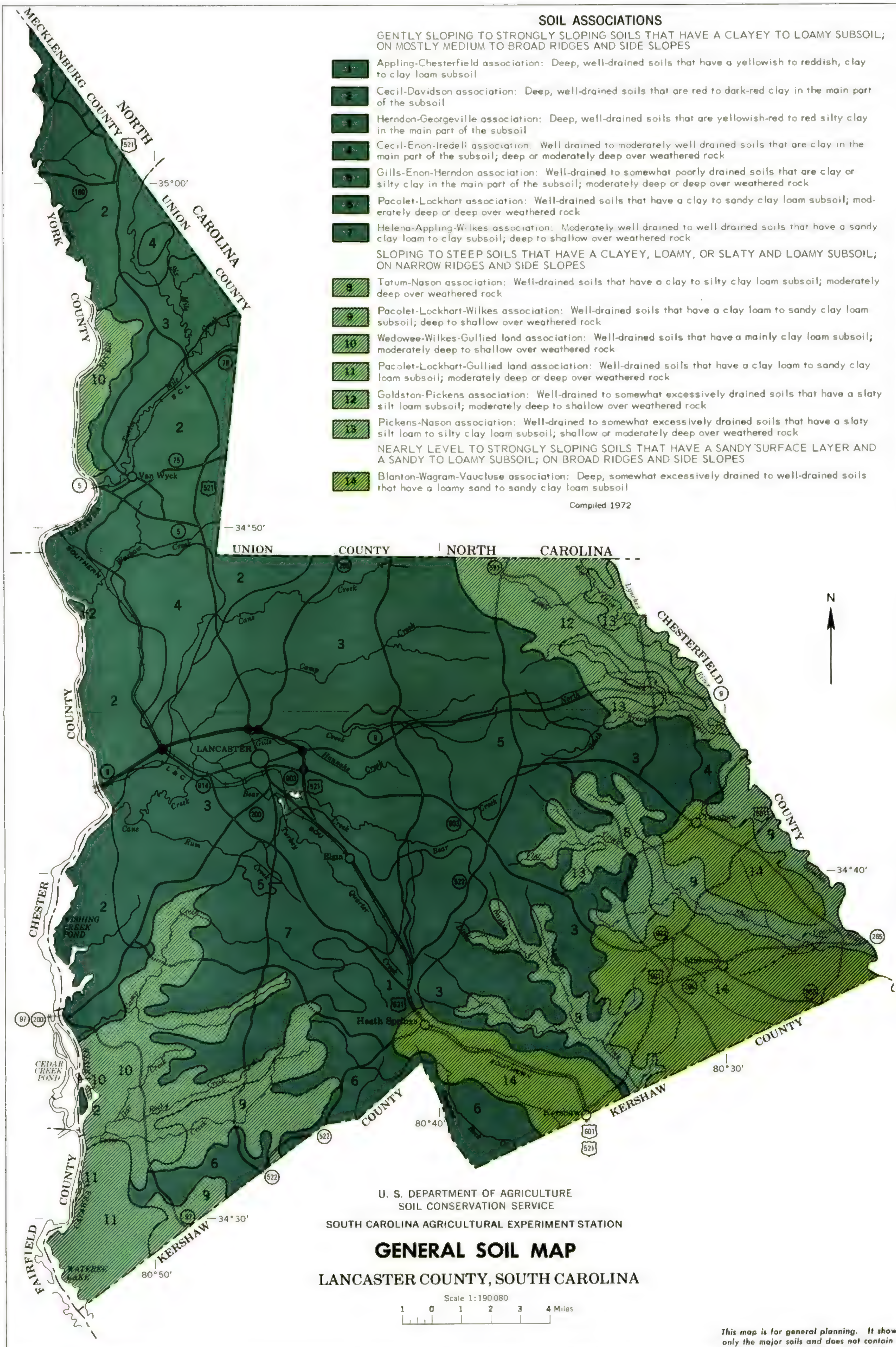
For additional information dealing with Supplemental Nutrition Assistance Program (SNAP) issues, call either the USDA SNAP Hotline Number at (800) 221-5689, which is also in Spanish, or the State Information/Hotline Numbers (http://directives.sc.egov.usda.gov/33085.wba).

All Other Inquiries

For information not pertaining to civil rights, please refer to the listing of the USDA Agencies and Offices (http://directives.sc.egov.usda.gov/33086.wba).



SOIL ASSOCIATIONS

GENTLY SLOPING TO STRONGLY SLOPING SOILS THAT HAVE A CLAYEY TO LOAMY SUBSOIL; ON MOSTLY MEDIUM TO BROAD RIDGES AND SIDE SLOPES

1 Appling-Chesterfield association: Deep, well-drained soils that have a yellowish to reddish, clay to clay loam subsoil

2 Cecil-Davidson association: Deep, well-drained soils that are red to dark-red clay in the main part of the subsoil

3 Herndon-Georgeville association: Deep, well-drained soils that are yellowish-red to red silty clay in the main part of the subsoil

4 Cecil-Enon-Iredell association: Well drained to moderately well drained soils that are clay in the main part of the subsoil; deep or moderately deep over weathered rock

5 Gills-Enon-Herndon association: Well-drained to somewhat poorly drained soils that are clay or silty clay in the main part of the subsoil; moderately deep or deep over weathered rock

6 Pacolet-Lockhart association: Well-drained soils that have a clay to sandy clay loam subsoil; moderately deep or deep over weathered rock

7 Helena-Appling-Wilkes association: Moderately well drained to well drained soils that have a sandy clay loam to clay subsoil; deep to shallow over weathered rock

SLOPING TO STEEP SOILS THAT HAVE A CLAYEY, LOAMY, OR SLATY AND LOAMY SUBSOIL; ON NARROW RIDGES AND SIDE SLOPES

8 Tatum-Nason association: Well-drained soils that have a clay to silty clay loam subsoil; moderately deep over weathered rock

9 Pacolet-Lockhart-Wilkes association: Well-drained soils that have a clay loam to sandy clay loam subsoil; deep to shallow over weathered rock

10 Wedowee-Wilkes-Gullied land association: Well-drained soils that have a mainly clay loam subsoil; moderately deep to shallow over weathered rock

11 Pacolet-Lockhart-Gullied land association: Well-drained soils that have a clay loam to sandy clay loam subsoil; moderately deep or deep over weathered rock

12 Goldston-Pickens association: Well-drained to somewhat excessively drained soils that have a slaty silt loam subsoil; moderately deep to shallow over weathered rock

13 Pickens-Nason association: Well-drained to somewhat excessively drained soils that have a slaty silt loam to silty clay loam subsoil; shallow or moderately deep over weathered rock

NEARLY LEVEL TO STRONGLY SLOPING SOILS THAT HAVE A SANDY SURFACE LAYER AND A SANDY TO LOAMY SUBSOIL; ON BROAD RIDGES AND SIDE SLOPES

14 Blanton-Wagram-Vaucluse association: Deep, somewhat excessively drained to well-drained soils that have a loamy sand to sandy clay loam subsoil

Compiled 1972

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SOUTH CAROLINA AGRICULTURAL EXPERIMENT STATION

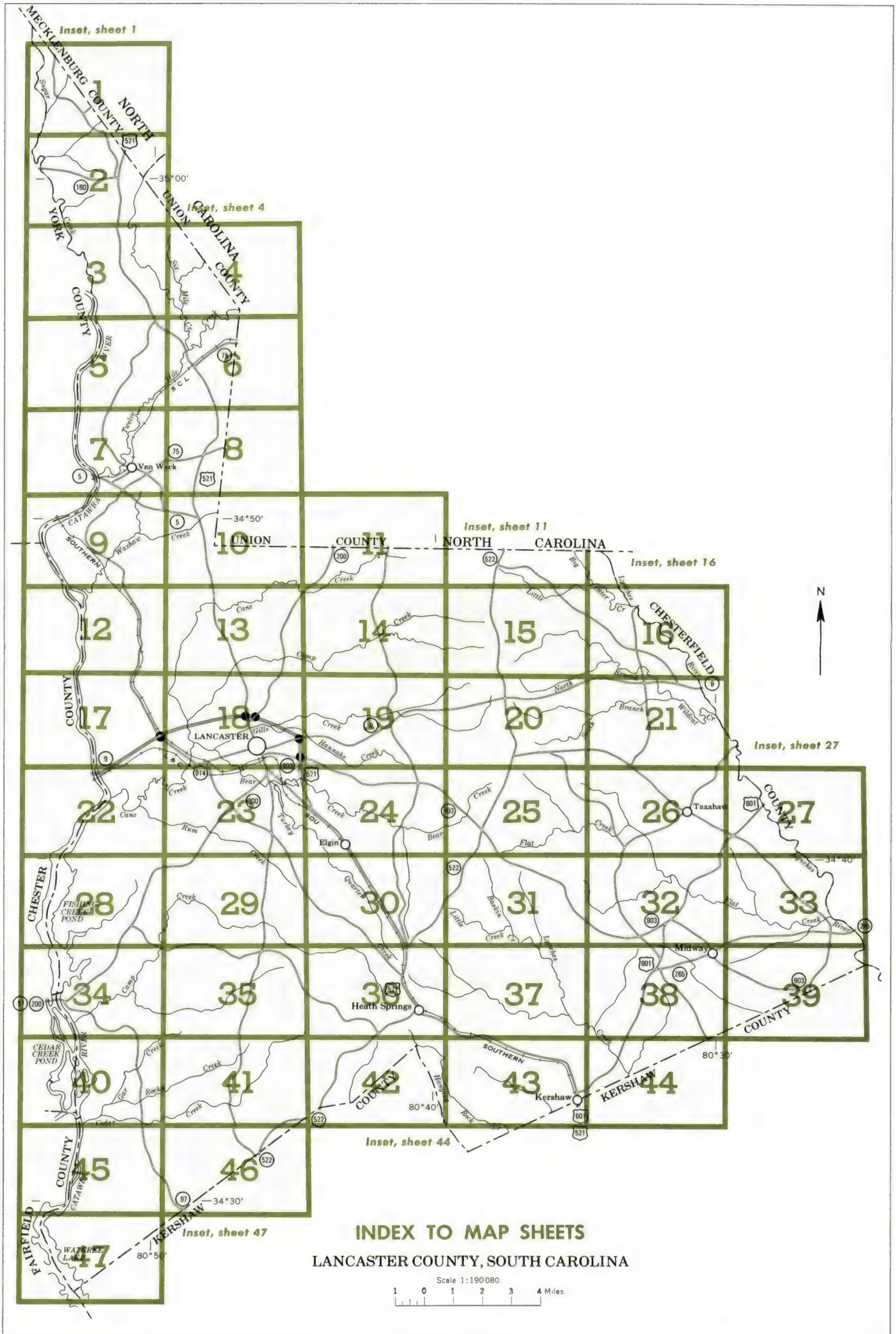
GENERAL SOIL MAP

LANCASTER COUNTY, SOUTH CAROLINA

Scale 1:190 080

1 0 1 2 3 4 Miles

This map is for general planning. It shows only the major soils and does not contain sufficient detail for operational planning.



INDEX TO MAP SHEETS

LANCASTER COUNTY, SOUTH CAROLINA

Scale 1:190080

1 0 1 2 3 4 Miles

SOIL LEGEND

The first capital letter is the initial one of the soil name. A second capital letter, B, C, D, E, or F, shows the slope. Most symbols without a slope letter are those of nearly level soils, but Rock land has a considerable range of slope. A final number, 2 or 3, in the symbol, shows that the soil is eroded or severely eroded.

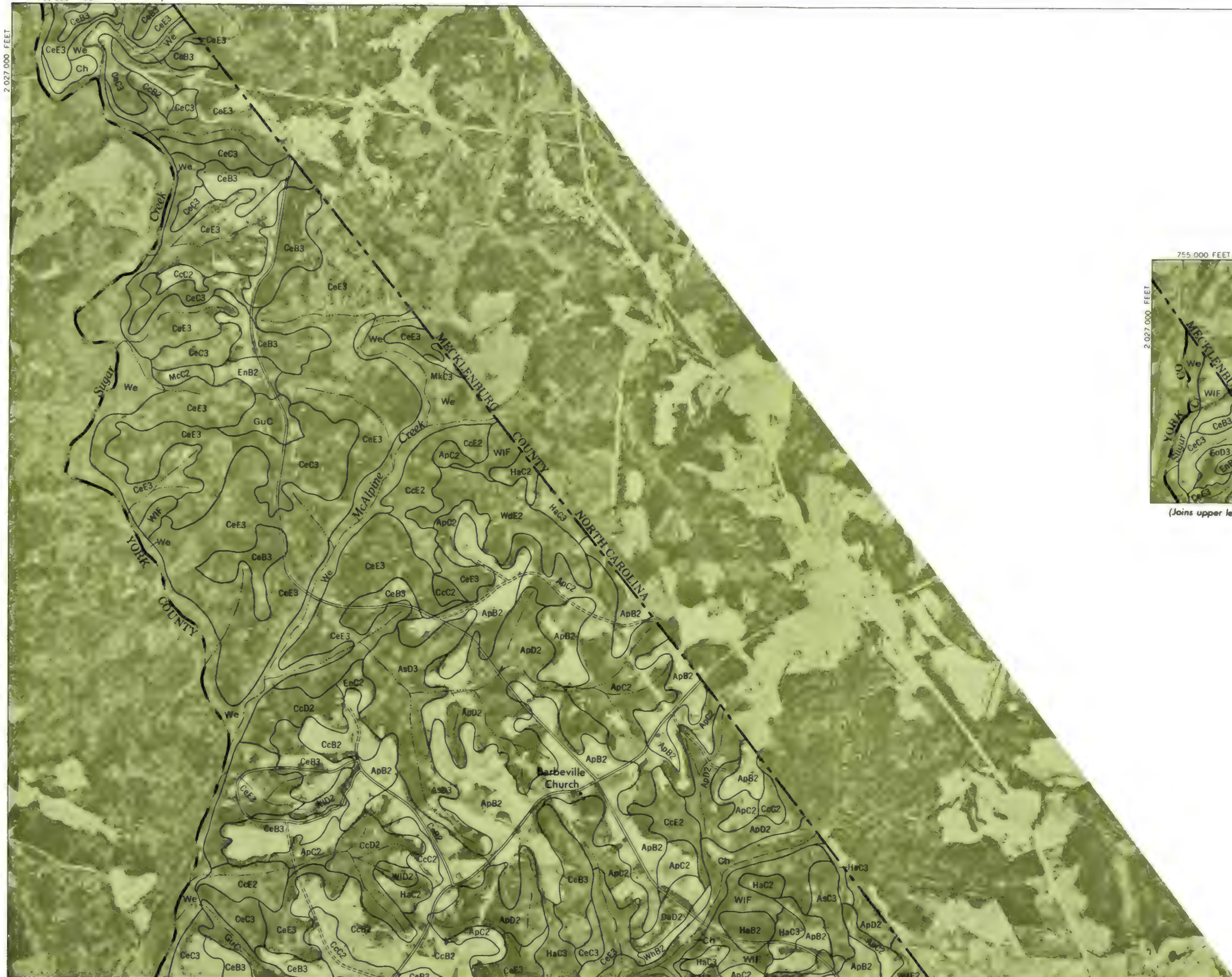
SYMBOL	NAME
ApB2	Appling fine sandy loam, 2 to 6 percent slopes, eroded
ApC2	Appling fine sandy loam, 6 to 10 percent slopes, eroded
ApD2	Appling fine sandy loam, 10 to 15 percent slopes, eroded
AsC3	Appling sandy clay loam, 6 to 10 percent slopes, severely eroded
AsD3	Appling sandy clay loam, 10 to 15 percent slopes, severely eroded
AtB2	Appling and Chesterfield soils, 2 to 6 percent slopes, eroded
AtC2	Appling and Chesterfield soils, 6 to 10 percent slopes, eroded
AtD2	Appling and Chesterfield soils, 10 to 15 percent slopes, eroded
BlC	Blaney sand, 6 to 10 percent slopes
BnB	Blanton sand, 0 to 6 percent slopes
BnC	Blanton sand, 6 to 15 percent slopes
CcB2	Cecil fine sandy loam, 2 to 6 percent slopes, eroded
CcC2	Cecil fine sandy loam, 6 to 10 percent slopes, eroded
CcD2	Cecil fine sandy loam, 10 to 15 percent slopes, eroded
CcE2	Cecil fine sandy loam, 15 to 25 percent slopes, eroded
CeB3	Cecil clay loam, 2 to 6 percent slopes, severely eroded
CeC3	Cecil clay loam, 6 to 10 percent slopes, severely eroded
CeE3	Cecil clay loam, 10 to 25 percent slopes, severely eroded
Ch	Chewacla soils
ClB	Colfax fine sandy loam, 2 to 6 percent slopes
Co	Congaree soils
DaB2	Davidson clay loam, 2 to 6 percent slopes, eroded
DaC2	Davidson clay loam, 6 to 10 percent slopes, eroded
DaD2	Davidson clay loam, 10 to 15 percent slopes, eroded
DvB	Durham loamy sand, 2 to 6 percent slopes
DvB2	Durham loamy sand, 2 to 6 percent slopes, eroded
DvC2	Durham loamy sand, 6 to 10 percent slopes, eroded
EnB2	Enon loam, 2 to 6 percent slopes, eroded
EnC2	Enon loam, 6 to 10 percent slopes, eroded
EnE2	Enon loam, 10 to 25 percent slopes, eroded
EoB3	Enon clay loam, 2 to 6 percent slopes, severely eroded
EoD3	Enon clay loam, 6 to 15 percent slopes, severely eroded
EuB	Eustis loamy sand, 0 to 6 percent slopes
EuD	Eustis loamy sand, 6 to 15 percent slopes
GeB2	Georgeville silt loam, 2 to 6 percent slopes, eroded
GeC2	Georgeville silt loam, 6 to 10 percent slopes, eroded
GgB3	Georgeville silty clay loam, 2 to 6 percent slopes, severely eroded
GgC3	Georgeville silty clay loam, 6 to 10 percent slopes, severely eroded
GlB	Gills silt loam, 2 to 6 percent slopes
GlB2	Gills silt loam, 2 to 6 percent slopes, eroded
GlC2	Gills silt loam, 6 to 10 percent slopes, eroded
GpB	Goldston-Pickens complex, 2 to 6 percent slopes
GpC	Goldston-Pickens complex, 6 to 10 percent slopes
GuC	Gullied land, Cecil soil material, sloping
GuF	Gullied land, Cecil soil material, steep
GvC	Gullied land, Georgeville soil material, sloping
GwF	Gullied land, Helena soil material, steep
HaB	Helena fine sandy loam, 2 to 6 percent slopes
HaB2	Helena fine sandy loam, 2 to 6 percent slopes, eroded
HaC2	Helena fine sandy loam, 6 to 10 percent slopes, eroded
HaC3	Helena fine sandy loam, 2 to 10 percent slopes, severely eroded
HdB2	Herndon silt loam, 2 to 6 percent slopes, eroded
HdC2	Herndon silt loam, 6 to 10 percent slopes, eroded
HdD2	Herndon silt loam, 10 to 15 percent slopes, eroded
HeB3	Herndon silty clay loam, 2 to 6 percent slopes, severely eroded
HeC3	Herndon silty clay loam, 6 to 10 percent slopes, severely eroded
IrB2	Iredell complex, 2 to 6 percent slopes, eroded
IrC2	Iredell complex, 6 to 10 percent slopes, eroded
LgB	Lockhart gravelly sandy loam, 2 to 6 percent slopes
LgC	Lockhart gravelly sandy loam, 6 to 10 percent slopes
LgD	Lockhart gravelly sandy loam, 10 to 15 percent slopes
LgE	Lockhart gravelly sandy loam, 15 to 25 percent slopes
LgF	Lockhart gravelly sandy loam, 25 to 40 percent slopes
MaB	Masada and Altavista soils, 2 to 6 percent slopes
McB2	Mecklenburg fine sandy loam, 2 to 6 percent slopes, eroded
McC2	Mecklenburg fine sandy loam, 6 to 10 percent slopes, eroded
McD2	Mecklenburg fine sandy loam, 10 to 15 percent slopes, eroded
MkC3	Mecklenburg clay loam, 6 to 10 percent slopes, severely eroded
NlD2	Nason loam, 10 to 15 percent slopes, eroded
NlE2	Nason loam, 15 to 25 percent slopes, eroded
NsE3	Nason silty clay loam, 10 to 25 percent slopes, severely eroded
PaB2	Pacolet sandy loam, 2 to 6 percent slopes, eroded
PaC2	Pacolet sandy loam, 6 to 10 percent slopes, eroded
PaD2	Pacolet sandy loam, 10 to 15 percent slopes, eroded
PaE2	Pacolet sandy loam, 15 to 25 percent slopes, eroded
PaF2	Pacolet sandy loam, 25 to 40 percent slopes, eroded
PcB3	Pacolet clay loam, 2 to 6 percent slopes, severely eroded
PcC3	Pacolet clay loam, 6 to 10 percent slopes, severely eroded
PcD3	Pacolet clay loam, 10 to 15 percent slopes, severely eroded
PcE3	Pacolet clay loam, 15 to 25 percent slopes, severely eroded
PkE	Pickens slaty silt loam, 10 to 25 percent slopes
PkF	Pickens slaty silt loam, 25 to 35 percent slopes
Ro	Rock land
Ru	Rutlege loamy sand
Sr	Starr soils
TaD2	Tatum loam, 10 to 15 percent slopes, eroded
TaE2	Tatum loam, 15 to 25 percent slopes, eroded
TcE3	Tatum silty clay loam, 10 to 25 percent slopes, severely eroded
VbB	Vaucluse and Blaney loamy sands, 2 to 6 percent slopes
VbC	Vaucluse and Blaney loamy sands, 6 to 10 percent slopes
VbD	Vaucluse and Blaney loamy sands, 10 to 15 percent slopes
WaB	Wagram sand, 2 to 6 percent slopes
WaC	Wagram sand, 6 to 10 percent slopes
WaD	Wagram sand, 10 to 15 percent slopes
WdE2	Wedowee sandy loam, 10 to 25 percent slopes, eroded
We	Wehadkee and Chewacla soils
WhB2	Wickham sandy loam, 2 to 6 percent slopes, eroded
WhC2	Wickham sandy loam, 6 to 10 percent slopes, eroded
WkC3	Wickham sandy clay loam, 6 to 10 percent slopes, severely eroded
WlC2	Wilkes sandy loam, 6 to 10 percent slopes, eroded
WlD2	Wilkes sandy loam, 10 to 15 percent slopes, eroded
WlF	Wilkes sandy loam, 15 to 35 percent slopes
Wo	Worsham fine sandy loam

1

N

751 000 FEET (Joins inset)

2 027 000 FEET



(Joins upper left)

Scale 1:20000

1 Mile — 0 — ¼ — ½ — ¾ — 1

5000 Feet — 0 — 1000 — 2000 — 3000 — 4000 — 5000

2 052 000 FEET

GuC (Joins sheet 2) WdE2 ApC2

735 000 FEET

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

LANCASTER COUNTY, SOUTH CAROLINA NO. 1

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

(10)

N

671 000 FEET

2 052 000 FEET

1 Mile

5 000 Feet

Scale 1:20000

(Joins sheet 9)

(Joins sheet 13)

(Joins sheet 11)

2 077 000 FEET

655 000 FEET

UNION COUNTY

NORTH CAROLINA

ANDREW JACKSON STATE PARK

Ebenezer Church

Cane Creek

LANCASTER COUNTY, SOUTH CAROLINA NO. 10

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum.

LANCASTER COUNTY, SOUTH CAROLINA — SHEET NUMBER 11

11

N

UNION COUNTY NORTH CAROLINA

660 000 FEET

2 102 000 FEET

Pleasant Plains Church

Bethel Church

Stewart Crossroads

Little Gully Creek

White Oak Creek

(Joins lower right)

(Joins inset, sheet 16)

(Joins sheet 15)

UNION COUNTY NORTH CAROLINA

660 000 FEET

2 077 000 FEET

Unity Church

Little Gully Creek

White Oak Creek

(Joins sheet 10)

(Joins inset)

(Joins sheet 14)

655 000 FEET

2 102 000 FEET

Scale 1:20000

5000 Feet

LANCASTER COUNTY, SOUTH CAROLINA NO. 11

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

N

655 000 FEET

2 027 000 FEET

1 Mile

5000 Feet

Scale 1:20000

(Joins sheet 9)

Springs Island

CATAWBA — CHESTER — COUNTY — RIVER

Old Waxhaw Church

Foster Crossroads

Riverside

David Stance Church

SOUTHERN

(Joins sheet 13)

(Joins sheet 17)

639 000 FEET

2 052 000 FEET

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

LANCASTER COUNTY, SOUTH CAROLINA NO. 12

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

LANCASTER COUNTY, SOUTH CAROLINA NO. 13

655 000 FEET

2 082 000 FEET

(Joins sheet 12)

(Joins sheet 10)

(Joins sheet 14)

(Joins sheet 18)

2 077 000 FEET

639 000 FEET

13

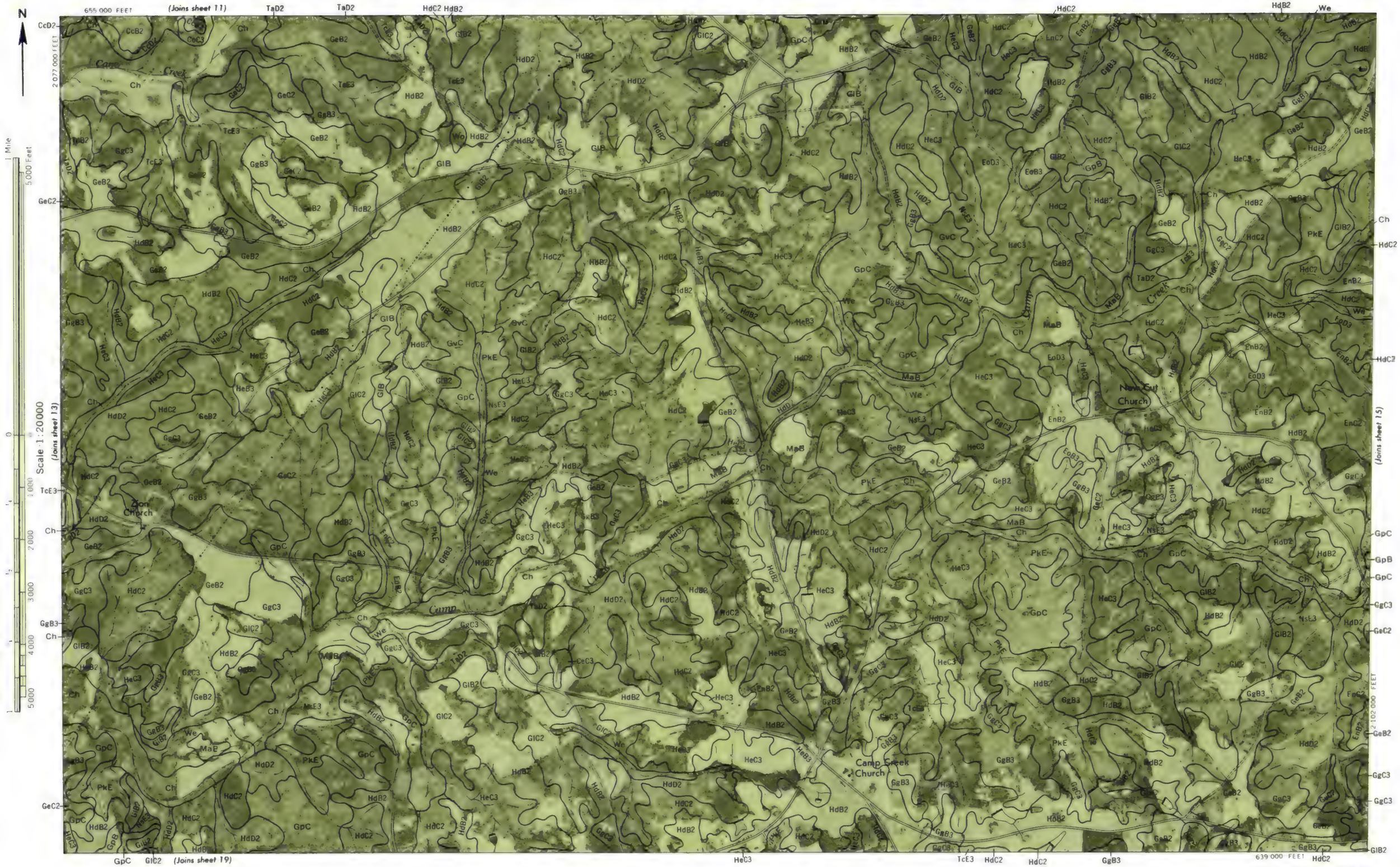
N

1 Mile

5000 Feet

Scale 1:20000

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum



LANCASTER COUNTY, SOUTH CAROLINA NO. 14

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

LANCASTER COUNTY, SOUTH CAROLINA — SHEET NUMBER 15

15

N

655 000 FEET

2 102 000 FEET

(Joins inset, sheet 11)

(Joins sheet 14)

(Joins sheet 16)

(Joins sheet 20)

639 000 FEET

2 127 000 FEET

Dr Sapps Crossroads

Tabernacle Church

New Hope Church

Buford School

Wildcat

1 Mile

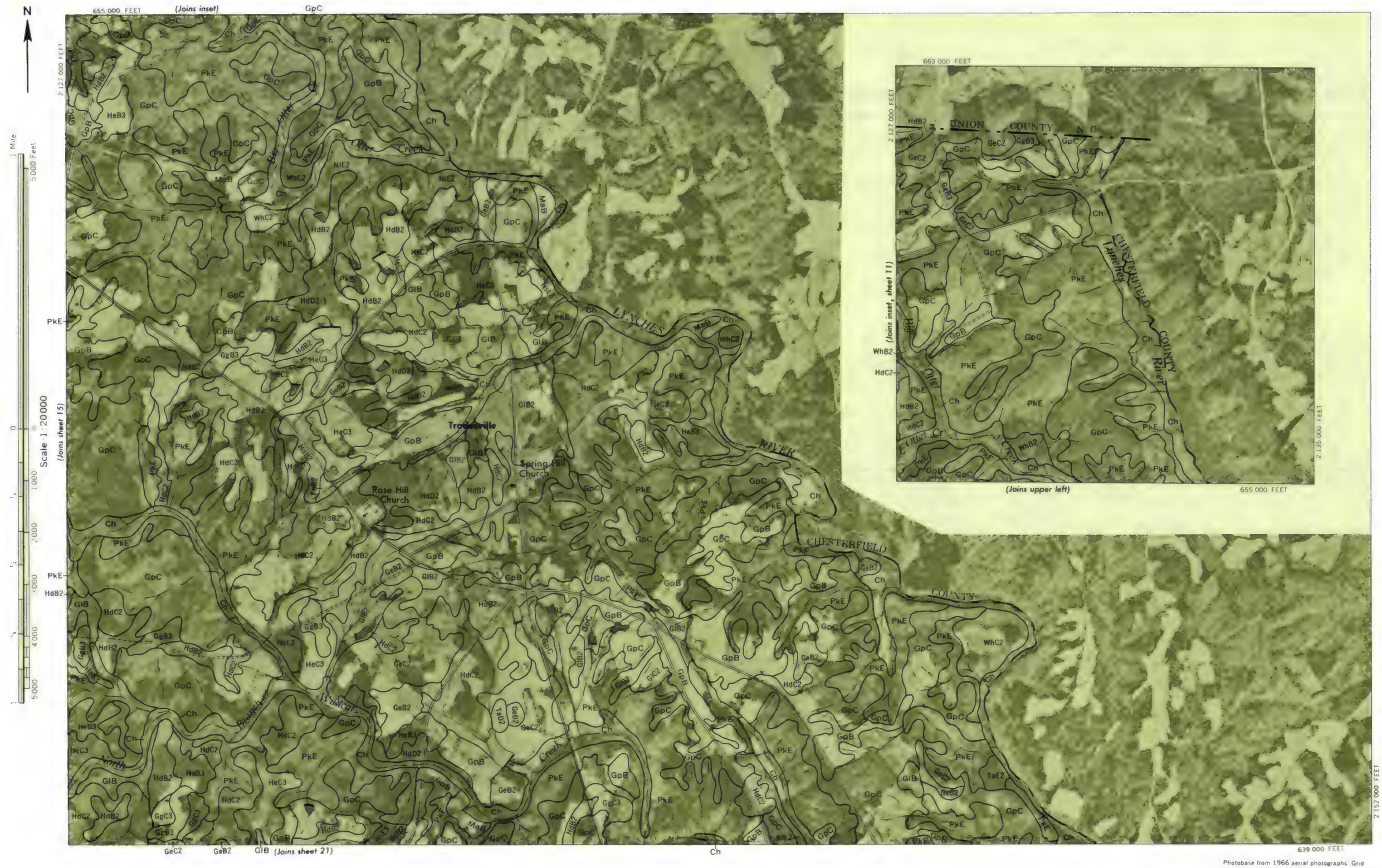
5 000 Feet

Scale 1:20000

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone 1927 North American datum

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

LANCASTER COUNTY, SOUTH CAROLINA NO. 15



LANCASTER COUNTY, SOUTH CAROLINA NO. 16

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

LANCASTER COUNTY, SOUTH CAROLINA — SHEET NUMBER 17

17

639 000 FEET

2 027 000 FEET

(Joins sheet 12)

N

CATAWBA RIVER

CHESTER COUNTY

Caskey

SOUTHERN

CHESTER AND LANCASTER

INDUSTRIAL SITE

BYP 9

9

(Joins sheet 18)

(Joins sheet 22)

623 000 FEET

2 052 000 FEET

1 Mile

5000 Feet

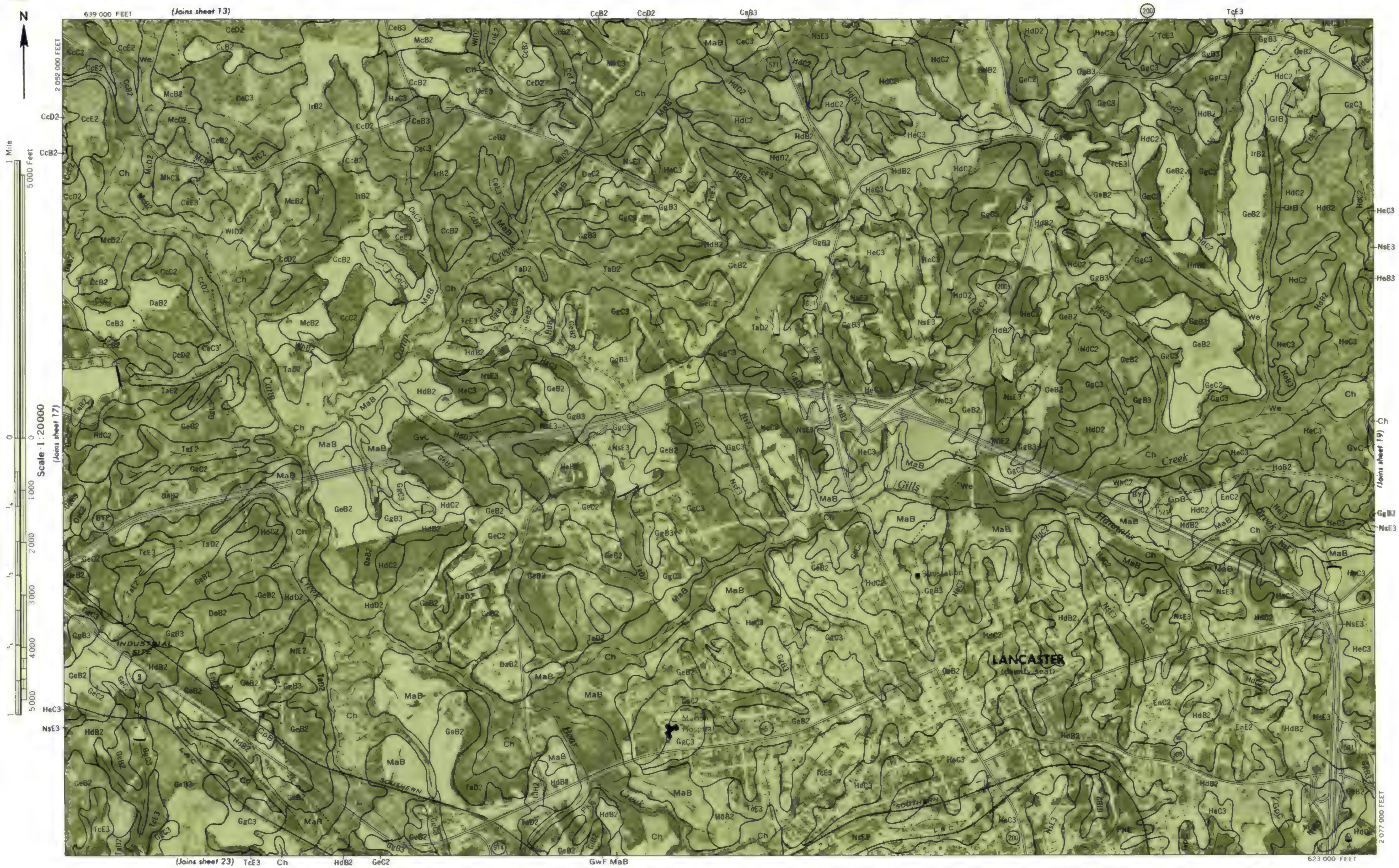
Scale 1:20000

LANCASTER COUNTY, SOUTH CAROLINA NO. 17

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station.

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

LANCASTER COUNTY, SOUTH CAROLINA — SHEET NUMBER 18



LANCASTER COUNTY, SOUTH CAROLINA NO. 18

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

LANCASTER COUNTY, SOUTH CAROLINA — SHEET NUMBER 19

19

N

639 000 FEET

2 077 000 FEET

2 102 000 FEET

(Joins sheet 14)

(Joins sheet 18)

(Joins sheet 20)

(Joins sheet 24)

Gills Creek

Gills Creek Church

Pleasant Dale Church

Hannahs Creek

Scale 1:20000

1 Mile

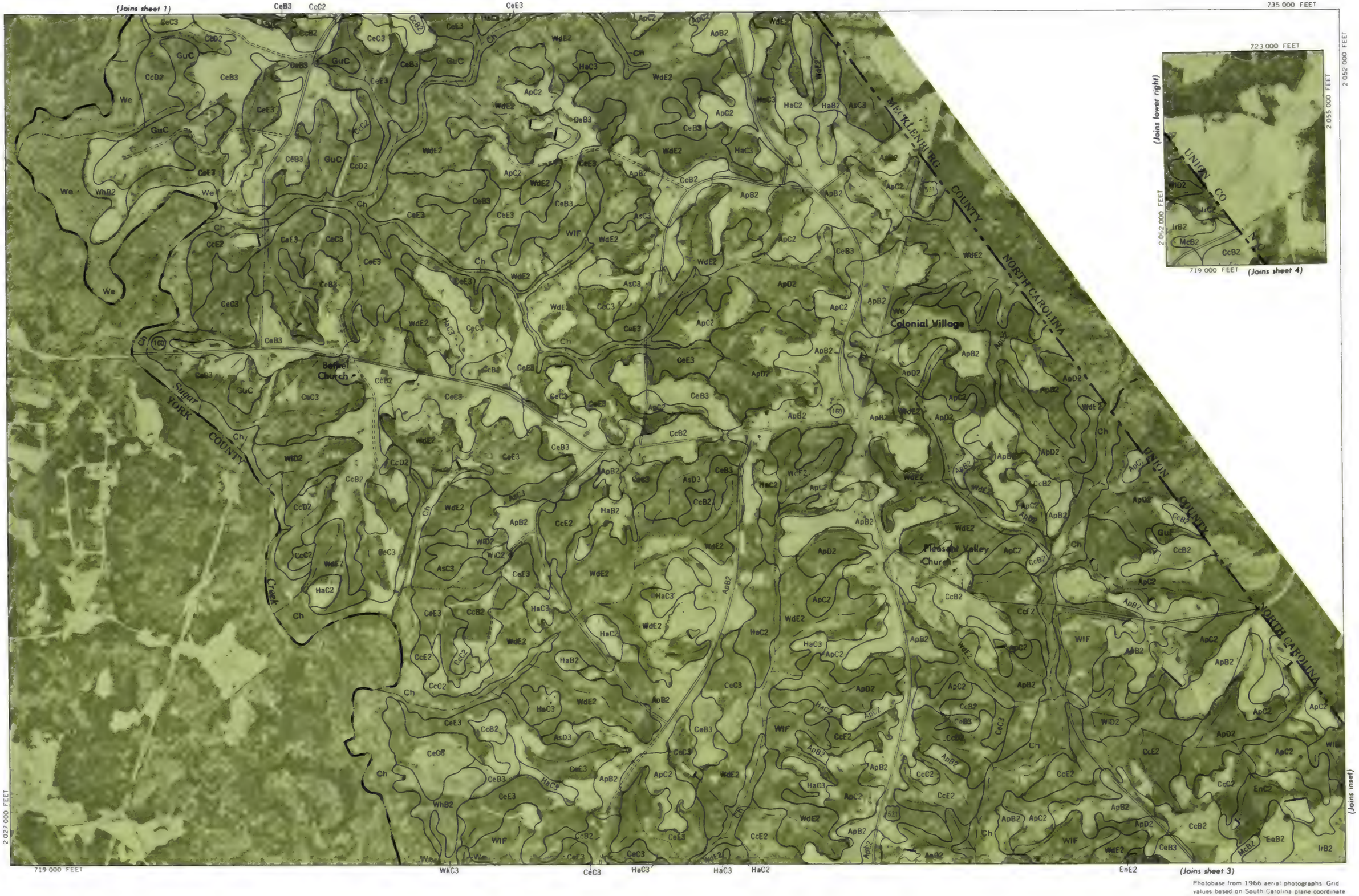
5000 Feet

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

LANCASTER COUNTY, SOUTH CAROLINA NO. 19

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

LANCASTER COUNTY, SOUTH CAROLINA — SHEET NUMBER 2



LANCASTER COUNTY, SOUTH CAROLINA NO. 2

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

N

639 000 FEET

(Joins sheet 15)

2 102 000 FEET

1 Mile

5000 Feet

0 0

Scale 1:20000

1 1/2 1 1/2 2 2 1/2 3 3 1/2 4 4 1/2 5

(Joins sheet 19)

Dwight Crossroads

New Zion Church

Union Church

Adams Crossroads

Gills Creek

Wildcat Branch

North Fork

Smith Branch

(Joins sheet 21)

(Joins sheet 25)

2 127 000 FEET

623 000 FEET

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

LANCASTER COUNTY, SOUTH CAROLINA NO. 20

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

LANCASTER COUNTY, SOUTH CAROLINA NO. 21

639 000 FEET

2 127 000 FEET

(Joins sheet 16)

(Joins sheet 20)

GgC3 (Joins sheet 26)

623 000 FEET

2 152 000 FEET

(Joins inset, sheet 27)

21

N

Scale 1:20000

5000 Feet

0 1000 2000 3000 4000 5000

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

1 Mile
5,000 Feet
Scale 1:20000
0 1000 2000 3000 4000 5000

LANCASTER COUNTY, SOUTH CAROLINA NO. 22

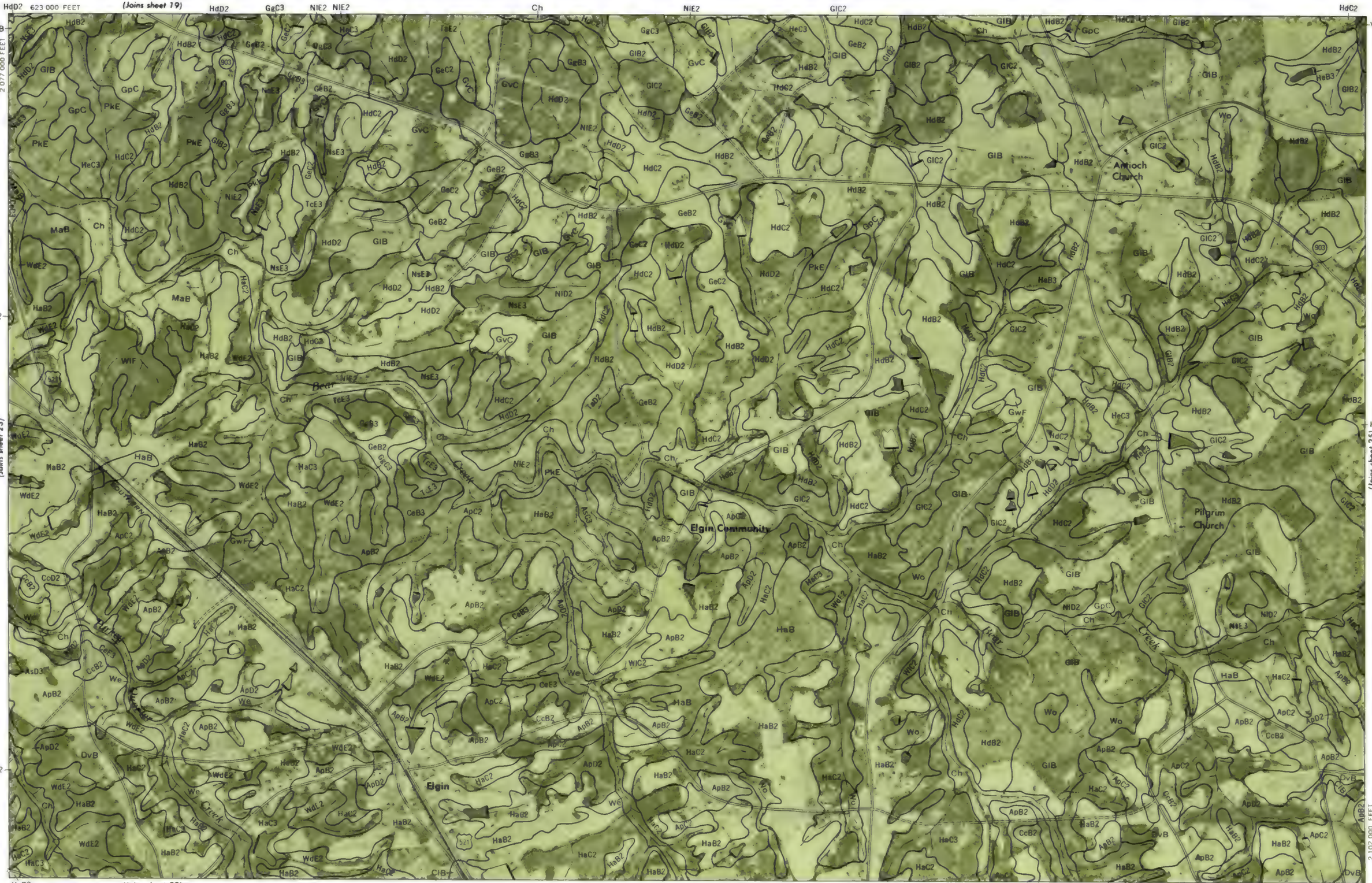
This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone 1927 North American datum

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

LANCASTER COUNTY, SOUTH CAROLINA NO. 23

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum.



This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

LANCASTER COUNTY, SOUTH CAROLINA NO. 25
This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

623 000 FEET

2 102 000 FEET

(Joins sheet 24)

(Joins sheet 20)

(Joins sheet 26)

(Joins sheet 31)

607 000 FEET

2 127 000 FEET

Antioch Acres

Red Hill Church

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

N

Scale 1:20000

0 1000 2000 4000 5000 5000 Feet

623 000 FEET

2 127 000 FEET

(Joins sheet 21)

N

1 Mile

5000 Feet

0

0

Scale 1:20000

(Joins sheet 25)

(Joins sheet 27)

2 152 000 FEET

607 000 FEET

(Joins sheet 32)

Creek

Flat

Taxahaw

40 Acre Rock

LANCASTER COUNTY, SOUTH CAROLINA NO. 26

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station.

LANCASTER COUNTY, SOUTH CAROLINA NO. 27

(27)

N

623 000 FEET

2 152 000 FEET

(Joins inset) MaB

(Joins sheet 26)

2 177 000 FEET

607 000 FEET

(Joins sheet 33)

VbB LgC WaB ApB2

LANCASTER

CHESTERFIELD COUNTY

Rocky Branch Church

629 000 FEET

2 155 000 FEET

(Joins sheet 21)

(Joins upper left) 623 000 FEET

1 Mile

5 000 Feet

Scale 1:20000

0 1000 2000 3000 4000 5000

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone 1927 North American datum

N

607 000 FEET

2 027 000 FEET

NsE3

(Joins sheet 22)

RESERVOIR

CHESTER COUNTY

CREEK

FISHING

RIVER

CATAWBA

Bethel Church

Bell Town School

Camp Creek Church

Camp

(Joins sheet 29)

GlC2

MaB

NlE2

ApD2

2 052 000 FEET

ApD2 (Joins sheet 34)

591 000 FEET

1 Mile

5 000 Feet

Scale 1:20000

0 1/2 1 1/2 2 2 1/2 3 3 1/2 4 4 1/2 5 5000

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

LANCASTER COUNTY, SOUTH CAROLINA NO. 28

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum.

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

LANCASTER COUNTY, SOUTH CAROLINA NO. 29

29

N

Scale 1:20000

1 Mile

5000 Feet

GeC2 607 000 FEET

HdB2 GlC2

GlC2 GlC2

(Joins sheet 23) WdE2

2 052 000 FEET

(Joins sheet 28)

(Joins sheet 30)

Jones School

Jones Crossroads

Camp Creek

PkE Creek

2 077 000 FEET

CcB2 WdE2 Wo HaC2 WdE2 HaC2 HaB2 HaB2 (Joins sheet 35) 591 000 FEET

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

LANCASTER COUNTY, SOUTH CAROLINA — SHEET NUMBER 3

3

N

719 000 FEET

2 027 000 FEET

(Joins sheet 2)

(Joins sheet 4)

(Joins sheet 5)

2 052 000 FEET

703 000 FEET

Indian Land School

Belair Church

El Bethel Church

YORK COUNTY

CATAWBA R.

Sugar Creek

Turkey Creek

Ch Creek

Scale 1:20000

1 Mile

5000 Feet

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

LANCASTER COUNTY, SOUTH CAROLINA NO. 3

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

N

607 000 FEET

2 077 000 FEET

(Joins sheet 24)

(Joins sheet 29)

(Joins sheet 36)

(Joins sheet 31)

Scale 1:20000

1 Mile

5000 Feet

Turkey Quarter Creek

Southern

Elgin Church

Oak Ridge School

Oak Ridge Church

521

522

591 000 FEET

2 102 000 FEET

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum.

LANCASTER COUNTY, SOUTH CAROLINA NO. 30

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station.

LANCASTER COUNTY, SOUTH CAROLINA — SHEET NUMBER 31

31

N

607 000 FEET

2 102 000 FEET

(Joins sheet 25)

(Joins sheet 30)

(Joins sheet 32)

(Joins sheet 37)

591 000 FEET

2 127 000 FEET

Rich Hill Church

Rich Hill School

Fork Hill Crossroads

Fork Hill Church

MINERAL MINES

Bushtown

Hawkins

Little Creek

Creek

Scale 1:20000

1 Mile

5000 Feet

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

LANCASTER COUNTY, SOUTH CAROLINA NO 31

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone 1927 North American datum

N

607 000 FEET

2 127 000 FEET

(Joins sheet 26)

White Bluff Church

White Bluff Crossroads

Flat Creek School

Flat Creek

1 Mile

5 000 Feet

Scale 1:20000

0 1000 2000 3000 4000 5000

(Joins sheet 31)

(Joins sheet 38)

(Joins sheet 33)

ApC2

WaB

LgF

2 152 000 FEET

591 000 FEET

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

LANCASTER COUNTY, SOUTH CAROLINA NO. 32

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

LANCASTER COUNTY, SOUTH CAROLINA NO. 33

607 000 FEET

591 000 FEET

2 152 000 FEET

2 177 000 FEET

(Joins sheet 27)

(Joins sheet 32)

(Joins sheet 39)

Charlesboro Church

LYNCHES RIVER

CHESTERFIELD COUNTY

Flat Creek

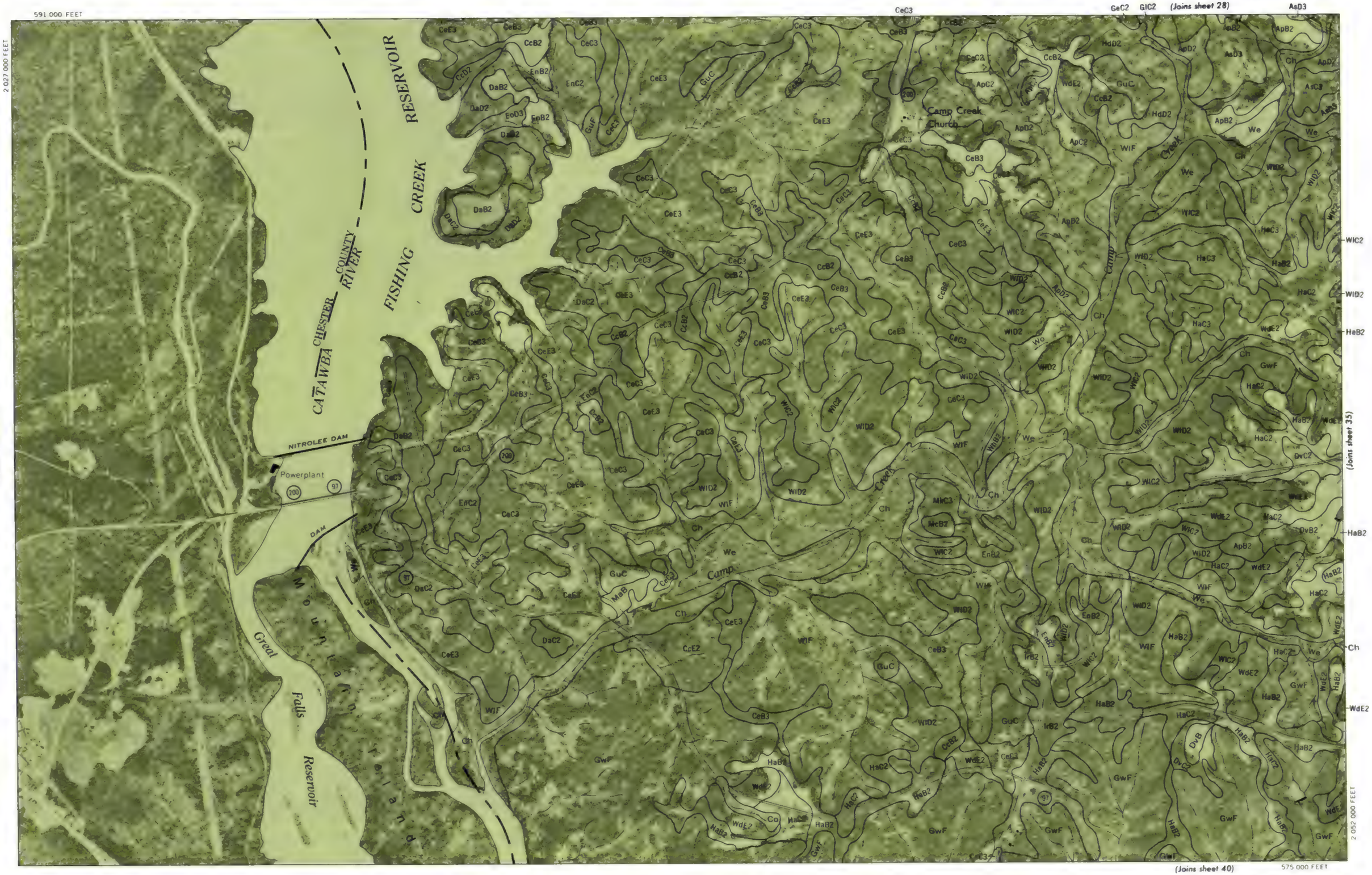
Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

N

Scale 1:20000

1 Mile

5000 Feet



1 Mile
5000 Feet
Scale 1:20000
0 1000 2000 3000 4000 5000

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum.

LANCASTER COUNTY, SOUTH CAROLINA — SHEET NUMBER 35

35

N

591 000 FEET

2 052 000 FEET

2 077 000 FEET

575 000 FEET

(Joins sheet 29)

(Joins sheet 34)

(Joins sheet 36)

(Joins sheet 41)

New Hope Church

Coulters Crossroads

Mt Carmel Church

Cedar Creek

1 Mile

5 000 Feet

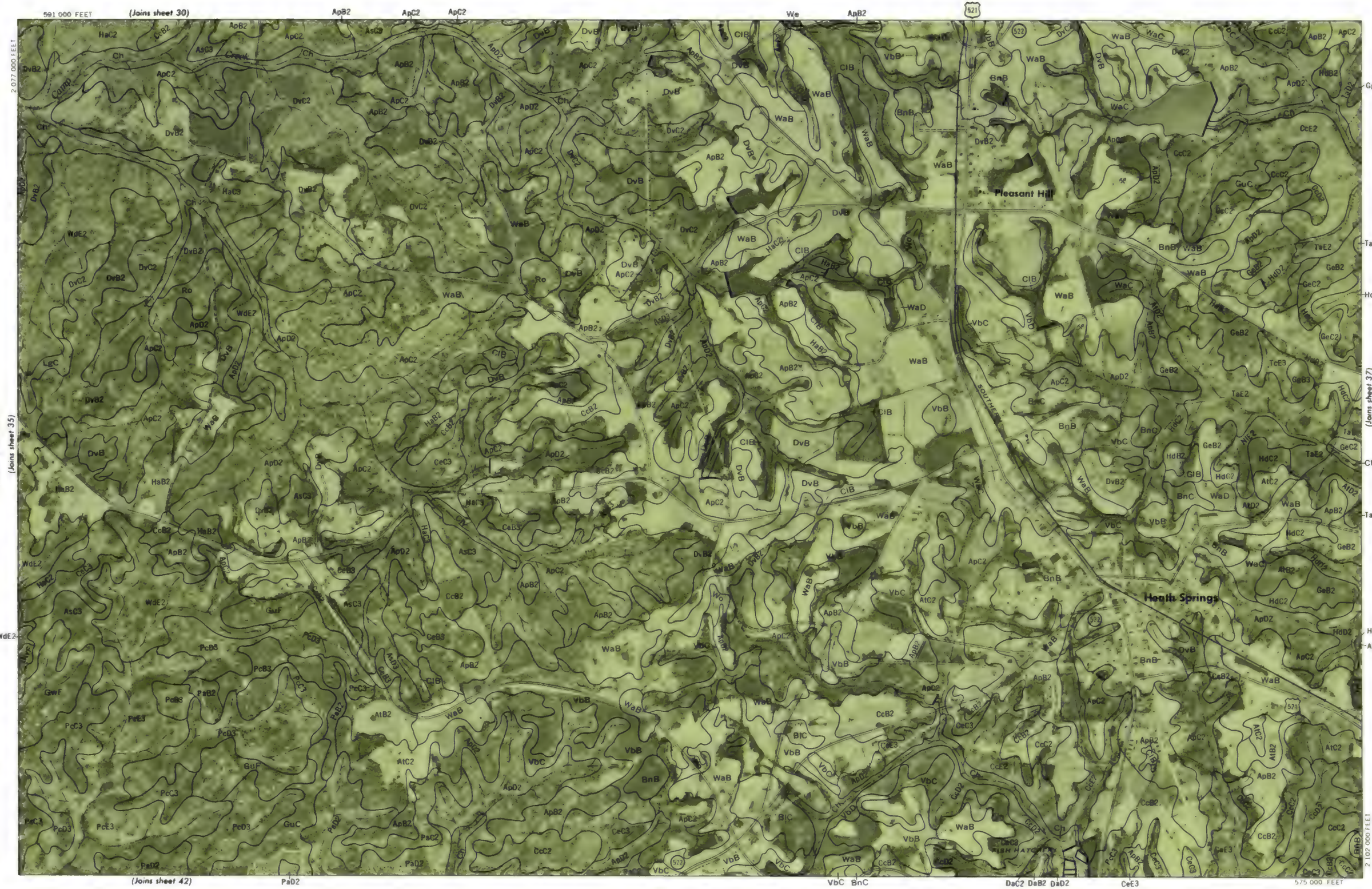
Scale 1:20000

1000 2000 3000 4000 5000

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

LANCASTER COUNTY, SOUTH CAROLINA NO. 35



LANCASTER COUNTY, SOUTH CAROLINA NO. 36

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

LANCASTER COUNTY, SOUTH CAROLINA — SHEET NUMBER 37

37

N

LANCASTER COUNTY, SOUTH CAROLINA NO. 37

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station.

Flint Ridge Church

Oakhurst Church

Lynches Creek

SOUTHERN

(Joins sheet 31)

(Joins sheet 36)

(Joins sheet 38)

(Joins sheet 43)

TcE3 591 000 FEET

2 102 000 FEET

2 127 000 FEET

575 000 FEET

1 Mile

5000 Feet

Scale 1:20000

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

N

Scale 1:20000

1 Mile

5000 Feet

0 1000 2000 3000 4000 5000

BnB GgC3 591 000 FEET (Joins sheet 32)

2 127 000 FEET

(Joins sheet 37)

(Joins sheet 39)

(Joins sheet 44)

575 000 FEET

2 152 000 FEET

Pleasant Plains Church

Sand Hill Church

Midway

Midway Church

Haile Gold Mine Church

HAILE GOLD MINE

Lynches Creek

WERSHAW CO

LANCASTER COUNTY, SOUTH CAROLINA NO. 38

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

LANCASTER COUNTY, SOUTH CAROLINA NO. 39

591 000 FEET

(Joins sheet 33)

2 152 000 FEET

(Joins sheet 38)

2 177 000 FEET

575 000 FEET

CHESTERFIELD CO

LANCASTER COUNTY

KERSHAW COUNTY

Flat Creek Church

39

N

1 M P

5000 Feet

Scale 1:20000

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum.

(4)

(Joins inset, sheet 2)

719 000 FEET

2 052 000 FEET

N

1 Mile

5000 Feet

Scale 1:20000

(Joins sheet 3)

(Joins sheet 6)

703 000 FEET

2 077 000 FEET

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

LANCASTER COUNTY, SOUTH CAROLINA NO. 4

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

N

575 000 FEET

2 027 000 FEET

HaB2 *(Joins sheet 34)*

Great Falls Reservoir

DAM

Wateree

Island

CATAWBA

RIVER

RESERVOIR

Hill

Bowden

Pickett

Island

CEDAR CREEK

Powerplants

Big

Rocky Creek

CHESTER COUNTY

FAIRFIELD CO

ROCKY CREEK AND CEDAR CREEK POWER PLANTS

Creek

Rocky

Cedar

Gur

Ch

GwF

WdE2

HaB2

HaC3

HaC2

HaB

WlD2

WlC2

WlF

DaD2

DaC2

DaB2

ApD2

CcB2

CcD2

PcB3

PcD3

PcD8

PoE3

GuC

GuP

GuF

We

(Joins sheet 41)

(Joins sheet 45)

559 000 FEET

2 052 000 FEET

1 Mile

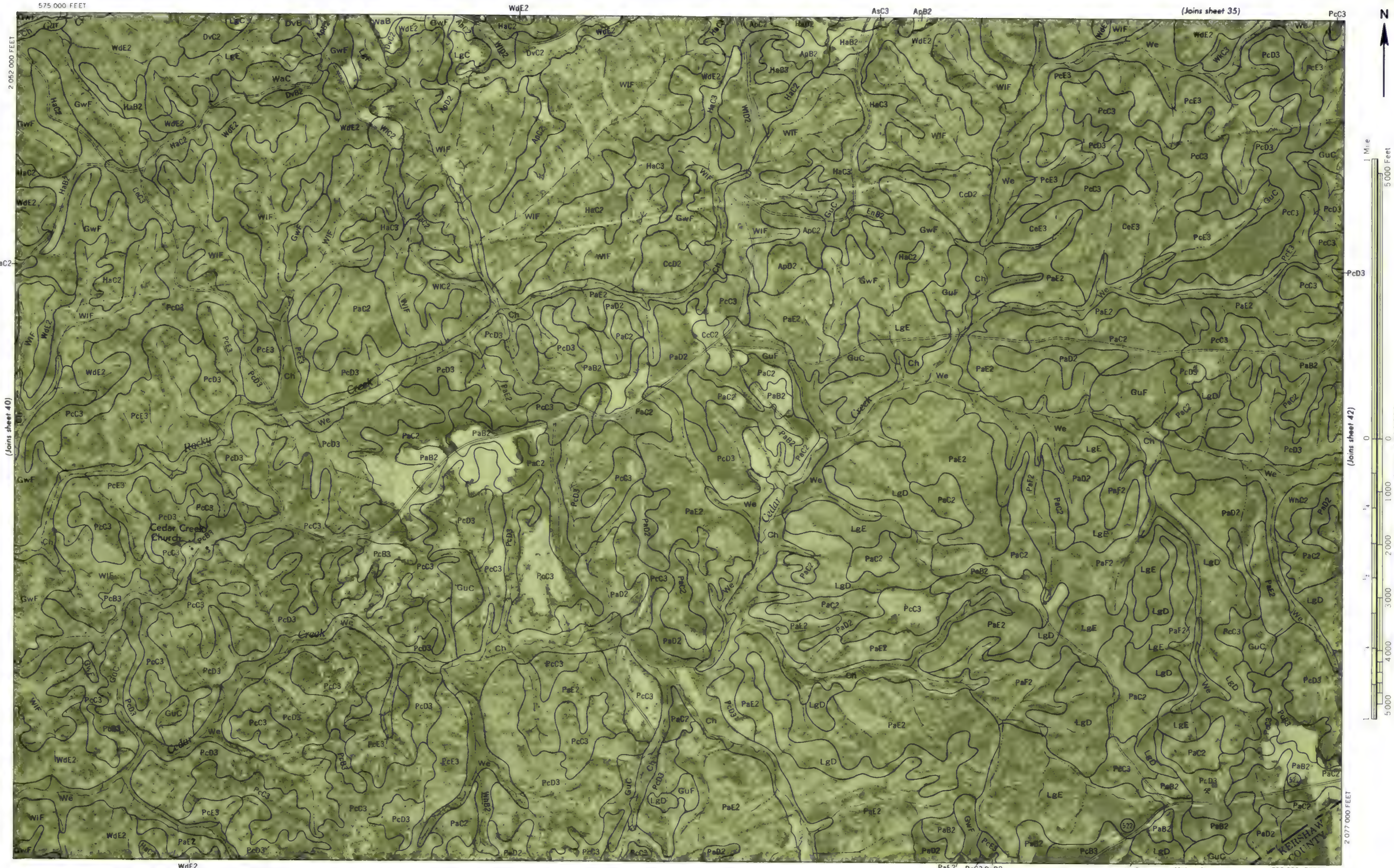
5000 Feet

Scale 1:20000

LANCASTER COUNTY, SOUTH CAROLINA NO. 40

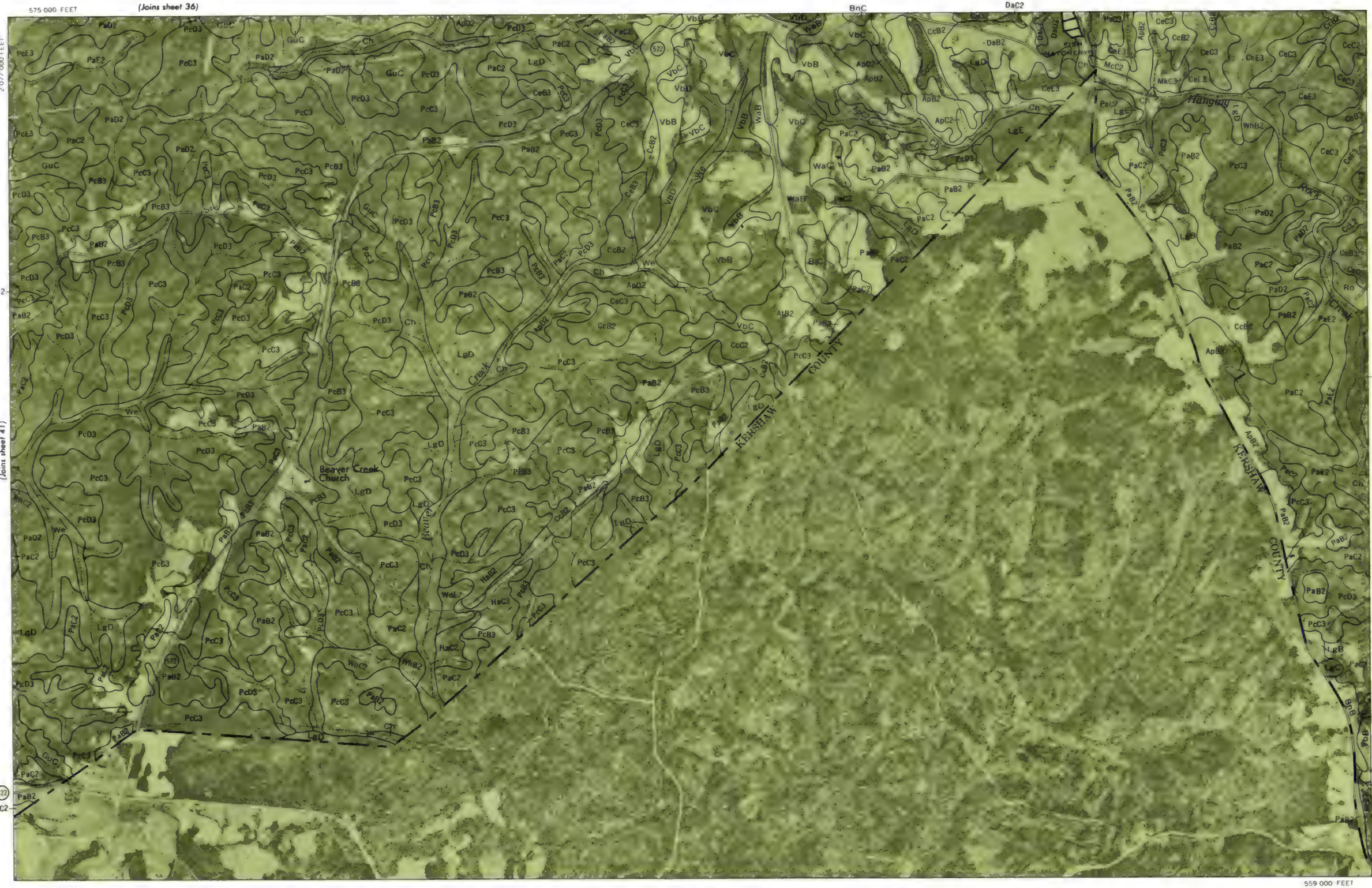
This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

Photobase from 1966 aerial photographs Grid values based on South Carolina plane coordinate system, north zone 1927 North American datum



Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station



LANCASTER COUNTY, SOUTH CAROLINA NO. 42

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

N

575 000 FEET

(Joins sheet 37)

2 102 000 FEET

Oakhurst School

Northside School

Kershaw

KERSHAW COUNTY

Haynes Creek

North Creek

(Joins sheet 42)

(Joins sheet 44)

(Joins inset, sheet 44)

559 000 FEET

2 127 000 FEET

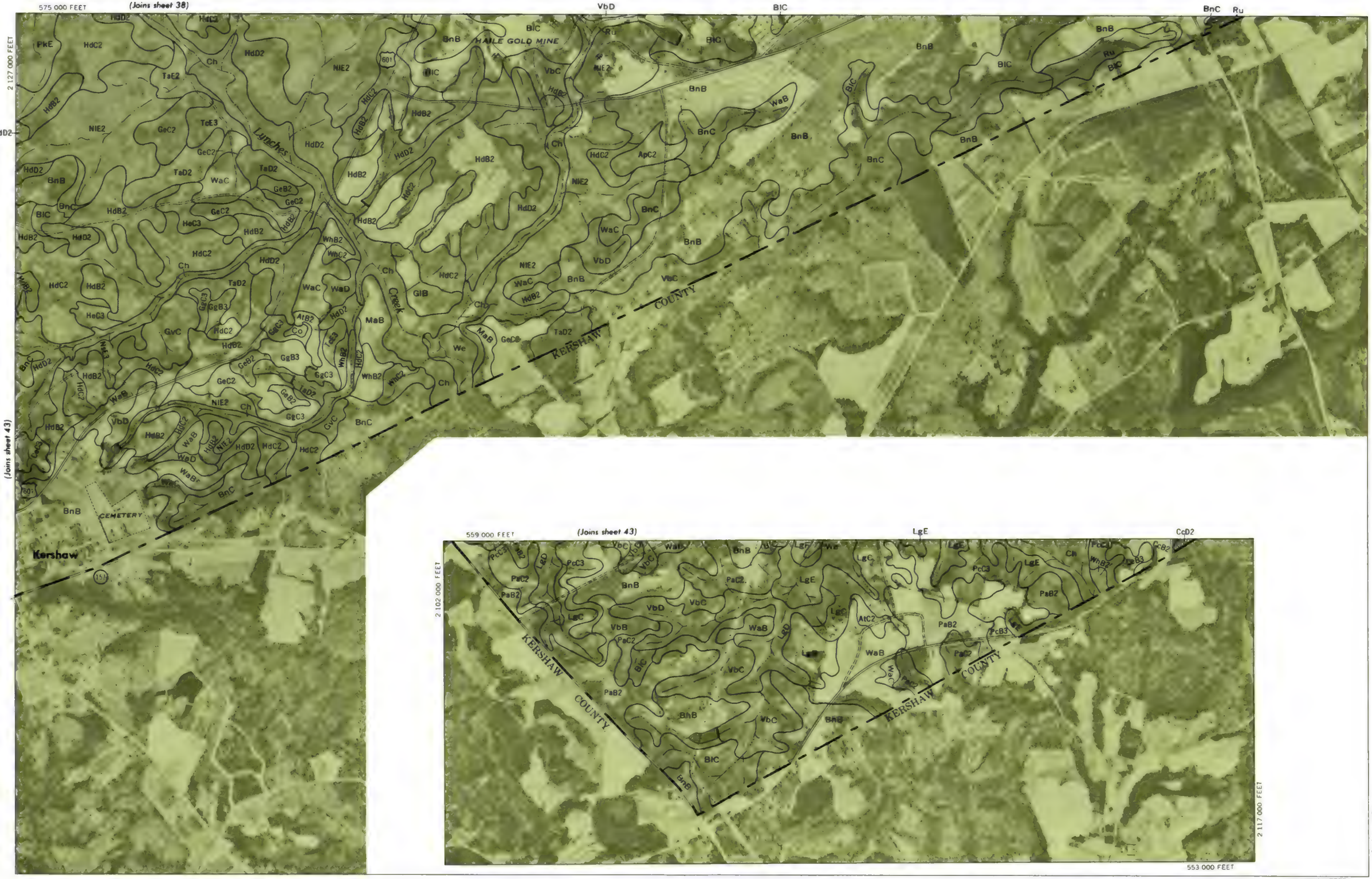
Scale 1:20000

1 0 1 2 0 1 2 3 4 5 000 Feet

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

LANCASTER COUNTY, SOUTH CAROLINA NO 43

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum



LANCASTER COUNTY, SOUTH CAROLINA NO. 44

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

LANCASTER COUNTY, SOUTH CAROLINA NO. 45

559 000 FEET

2 027 000 FEET

45

N

(Joins sheet 40)

(Joins sheet 46)

(Joins sheet 47)

543 000 FEET

2 052 000 FEET

1 Mile

5000 Feet

Scale 1:20000

KINGSBURY CEMETERY

FAIRFIELD COUNTY

CATAWBA RIVER

McDowell Island

McDowell Creek

Montgomery Church

Photobase from 1966 aerial photographs. Grid ... based on South Carolina plane coord nate ... zone 1927 North American datum

559 000 FEET

(Joins sheet 41)

2 052 000 FEET

N

1 Mile

5000 Feet

Scale 1:20000

(Joins sheet 45)

(Joins inset, sheet 47)

2 077 000 FEET

543 000 FEET

KERSHAW COUNTY

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

LANCASTER COUNTY, SOUTH CAROLINA NO. 46

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station.

543 000 FEET

2 057 000 FEET

(Joins sheet 45)

(Joins inset)

CATAWBA RIVER

FAIRFIELD COUNTY

WATEREE RESERVOIR

KERSHAW COUNTY

2 052 000 FEET

527 000 FEET

N

Scale 1:20000

1 0 1 2 3 4 5 Miles

5000 Feet

0 1000 2000 3000 4000 5000

543 000 FEET (Joins sheet 46)

(Joins upper right)

2 059 000 FEET

2 055 000 FEET

540 000 FEET

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone 1927 North American datum

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

LANCASTER COUNTY, SOUTH CAROLINA NO. 5

703 000 FEET

2 027 000 FEET

(Joins sheet 3)

N

1 Mile

5000 Feet

Scale 1:20000

(Joins sheet 6)

2 052 000 FEET

(Joins sheet 7)

687 000 FEET

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum.

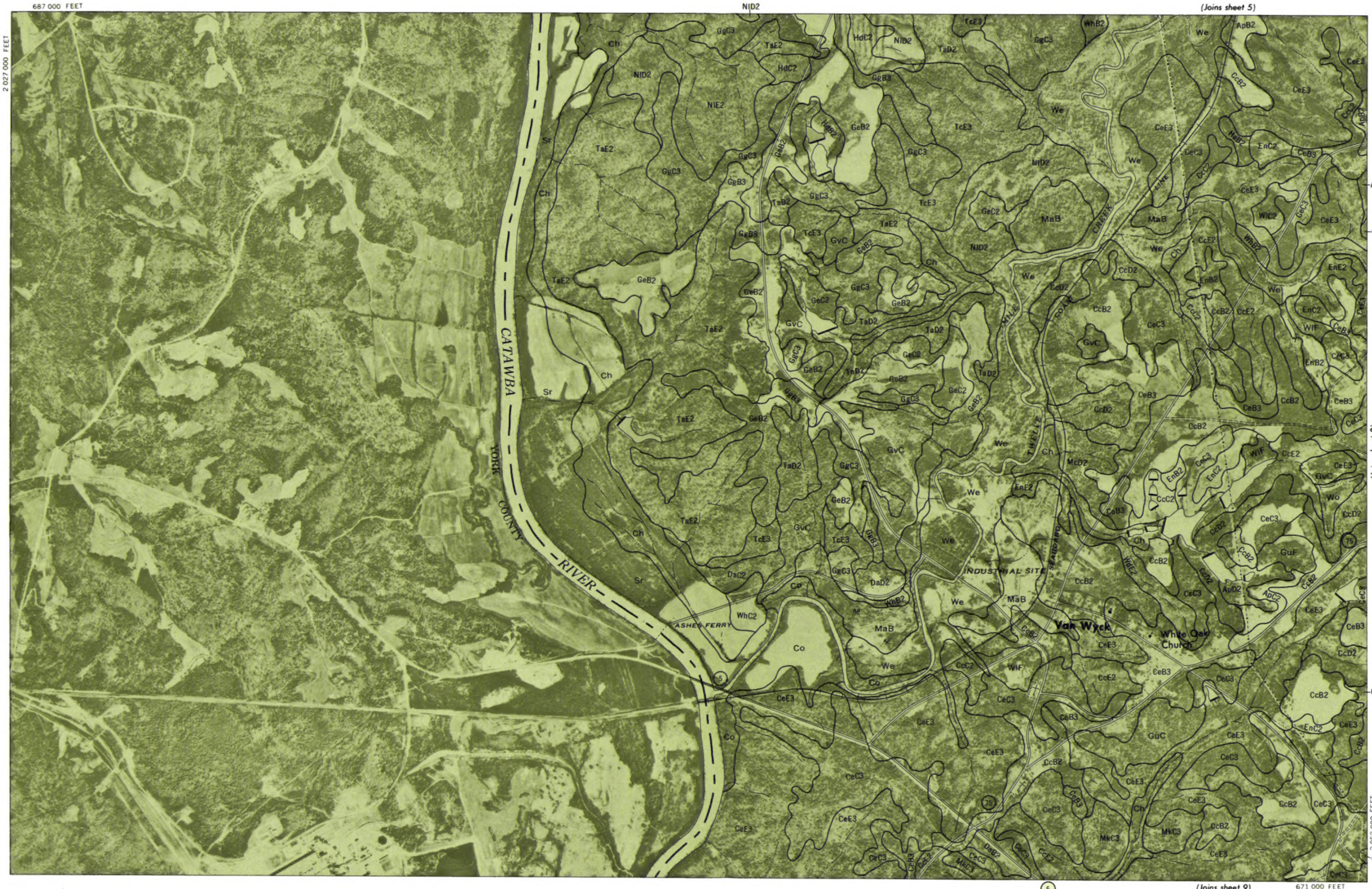
LANCASTER COUNTY, SOUTH CAROLINA NO. 6

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone 1927 North American datum

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station.

LANCASTER COUNTY, SOUTH CAROLINA NO. 7



Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum.

N

687 000 FEET

(Joins sheet 6)

2 052 000 FEET

1 Mile

5000 Feet

Scale 1:20000

(Joins sheet 7)

NORTH CAROLINA

UNION COUNTY

ANDREW JACKSON STATE PARK

(Joins sheet 10)

671 000 FEET

2 077 000 FEET

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone. 1927 North American datum.

LANCASTER COUNTY, SOUTH CAROLINA NO. 8

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station.

This map is one of a set compiled in 1971 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, and the South Carolina Agricultural Experiment Station.

LANCASTER COUNTY, SOUTH CAROLINA NO. 9

671 000 FEET

2 027 000 FEET

9

N

YORK COUNTY

CATAWBA RIVER

CHESTER COUNTY

INDIAN FERRY

Springdell

Waxhaw Creek

SOUTHERN

Ch

Co

CcE2

(Joins sheet 7)

CcD2

(Joins sheet 10)

1 Mile

5000 Feet

0

Scale 1:20000

2 052 000 FEET

CcE2 WhB2

We

McB2 EnC2

(Joins sheet 12)

655 000 FEET

Photobase from 1966 aerial photographs. Grid values based on South Carolina plane coordinate system, north zone, 1927 North American datum.

LANCASTER COUNTY, SOUTH CAROLINA

CONVENTIONAL SIGNS

WORKS AND STRUCTURES

Highways and roads

- Dual
- Good motor
- Poor motor
- Trail

Highway markers

- National Interstate
- U. S.
- State or county

Railroads

- Single track
- Multiple track
- Abandoned

Bridges and crossings

- Road
- Trail
- Railroad
- Ferry (FY)
- Ford (FORD)
- Grade
- R. R. over
- R. R. under

Tunnel

Buildings

- School
- Church

Mine and quarry

Gravel pit

Power line

Pipeline

Cemetery

Dams

Levee

Tanks

Well, oil or gas

Forest fire or lookout station

Windmill

BOUNDARIES

- National or state
- County
- Reservation
- Land grant
- Small park, cemetery, airport

DRAINAGE

Streams, double-line

- Perennial
- Intermittent

Streams, single-line

- Perennial
- Intermittent
  - Crossable with tillage implements
  - Not crossable with tillage implements
  - Unclassified

Canals and ditches (CANAL)

Lakes and ponds

- Perennial (water, w)
- Intermittent (int)

Spring

Marsh or swamp

Wet spot

Alluvial fan

Drainage end

RELIEF

Escarpments

- Bedrock
- Other

Prominent peak

Depressions

	Large	Small
Crossable with tillage implements		
Not crossable with tillage implements		
Contains water most of the time		

SOIL SURVEY DATA

Soil boundary and symbol (Dx)

Gravel

Stoniness
- Stony
- Very stony

Rock outcrops

Chert fragments

Clay spot

Sand spot

Gumbo or scabby spot

Made land

Severely eroded spot

Blowout, wind erosion

Gully